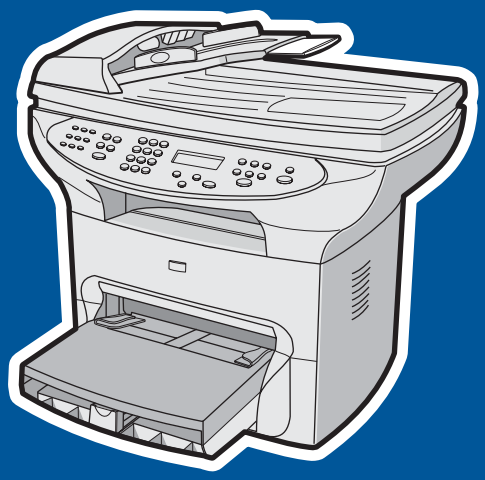

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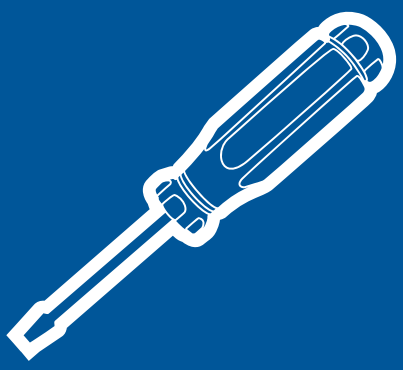

hp LaserJet 3380 all-in-one

Service Manual

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Safety Information

WARNING!

Potential Shock Hazard

Always follow basic safety precautions when using this product to reduce risk of injury from fire or electric shock.

Read and understand all instructions in the user guide.

Observe all warnings and instructions marked on the product.

Use only a grounded electrical outlet when connecting the HP LaserJet 3380 all-in-one product to a power source. If you don’t know whether the outlet is grounded, check with a qualified electrician.

Do not touch the contacts on the end of any of the sockets on the HP LaserJet 3380 all-in-one. Replace damaged cords immediately.

Unplug this product from wall outlets before cleaning.

Do not install or use this product near water or when you are wet.

Install the product securely on a stable surface.

Install the product in a protected location where no one can step on or trip over the power cord, and the power cord will not be damaged.

If the product does not operate normally, see the online user guide.

Refer all servicing questions to qualified personnel.

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1 Product information

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Product configuration

Hardware description

The product provides the following features:

- Prints at 1200 dots-per-inch (dpi).
- The flatbed scanner scans at 600 pixels-per-inch (ppi) with 24-bits per pixel (bpp) and has an automatic document feeder (ADF) that holds up to 50 pages.
- The formatter and the line interface unit (LIU) provide Group-3-compatible faxing capabilities.
- The product prints 20 pages per minute (ppm) on letter-size paper or 19 ppm on A4.
- The main input tray has a 250-sheet capacity for continuous, multiple-page printing.
- The priority input tray accommodates manual feeding of up to ten sheets.
- Both trays are center-justified for all supported paper sizes.
- The output bin holds up to 125 sheets.
- The product has a very fast first-page-out, at less than eight seconds.
- When the fuser has reached operational temperature, the first-copy-out speed is 12 seconds when using the flatbed scanner and less than 18 seconds when using the ADF.
- The formatter board contains 4 MB of ROM and 32 MB of RAM, and an embedded 32-bit Coldfire V4e processor.
- One DIMM slot is available for font or memory expansion (supporting an 8 MB, 16 MB, 32 MB, or 64 MB DIMM).
- The print engine has a 1,000 average (10,000 peak) page-per-month duty cycle.
- With 5 percent toner coverage, the standard print-cartridge life is 2,500 pages and the high-capacity print-cartridge life is 3,500 pages.

Firmware description

The firmware in the product includes:

- PCL 5e, PCL 6, and PostScript® (PS) Level 2 emulation
- 45 PCL and 35 PS fonts
- Memory Enhancement technology (MEt) with hardware compression and decompression
- Resolution Enhancement technology (REt) and EconoMode functionality

Software and supported operating systems

The following software components are included with the product:

- HP Toolbox
- HP LaserJet Scan
- TWAIN or WIA Scan Driver
- HP LaserJet Fax
- Readiris OCR (not installed with other software; separate installation is required)

- Printer drivers (PCL 5e, PCL 6, and PS)
- Installer/uninstaller

The following operating systems are supported:

- Windows 98Se (second edition)
- Windows Millennium Edition (Me)
- Windows 2000
- Windows XP (32-bit)
- Mac OS 9.1 or 9.2.*x*
- Mac OS X (10.2.*x* only)
- Driver-only support for Windows 98 (first edition), Windows XP 64-bit, and Windows 2003 Server

Product features

The HP LaserJet 3380 all-in-one is designed to perform the following tasks:

- **Print:** Print documents with HP LaserJet quality.
- **Copy:** Make up to 99 laser-quality copies of a 50-page original. It also enlarges, reduces, lightens/darkens, and collates copies.
- **Scan:** Scan documents to create electronic text or graphics files.
- **Fax:** Send and receive documents by using standard fax communications.

Overview of product

Hardware components

Use the following illustrations to identify the hardware components.

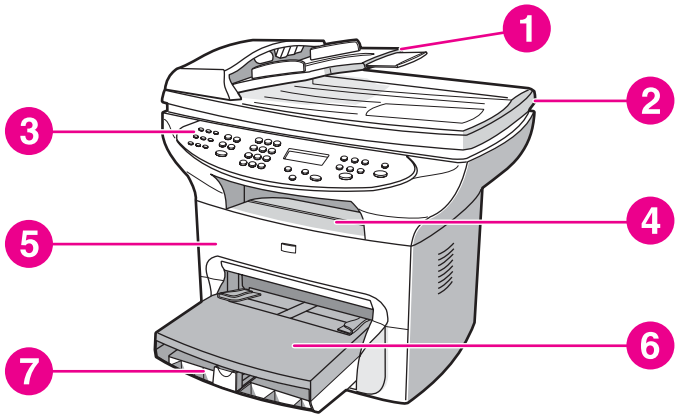

Figure 1-1. **Product hardware components (1 of 2)**

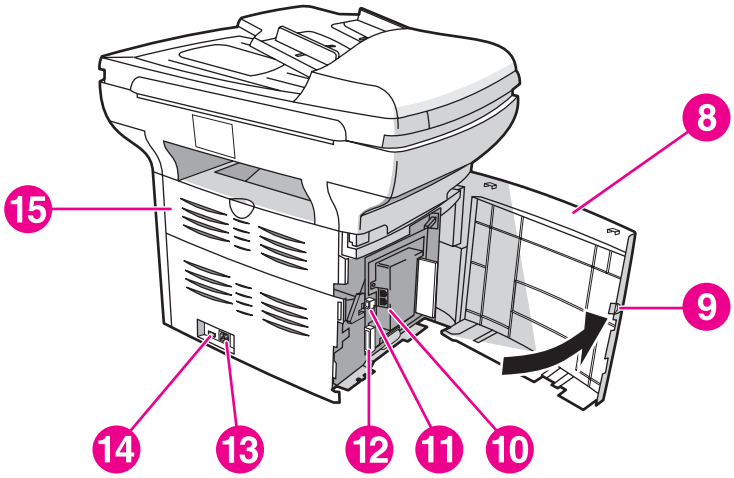

Figure 1-1. **Product hardware components (2 of 2)**

1 Automatic document feeder (ADF) input tray
2 Flatbed scanner lid
3 Product control panel
4 Output bin
5 Print-cartridge door
6 Priority input tray
7 Media input tray (also called the main input tray)
8 Left side panel
9 Left side panel latch
10 Fax interface ports
11 USB port
12 Parallel port
13 Power receptacle
14 Power switch
15 Straight-through output door

Product identification

Model and serial numbers

The model number and serial number are listed on an identification label that is located on the inside of the print-cartridge door. The serial number contains information about the country/region of origin, revision level, production code, and production number of the product. The label also contains power-rating and regulatory information.

Depending on the country/region where the product is sold, the identification label looks similar to the following example.

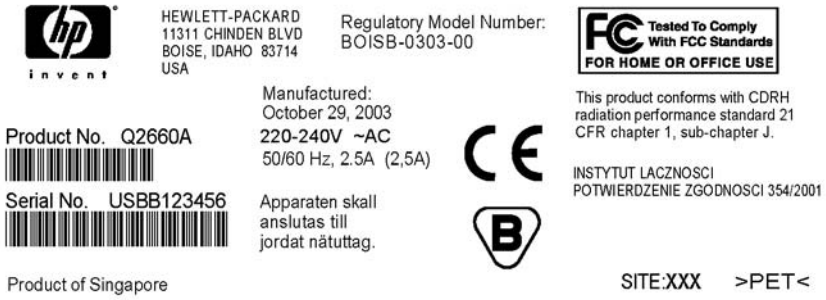

Figure 1-2. **Identification label**

Product specifications

Physical specifications

Table 1-1. HP LaserJet 3380 all-in-one physical specifications

Dimension	Specification
Height	74 cm (19.5 inches)
Depth	81 cm (20.5 inches)
Width	53 cm (21.5 inches)
Weight	15.9 kg (35 lbs)

Environmental specifications

Table 1-2. HP LaserJet 3380 all-in-one environmental specifications

Category	Specification
Operating environment (product plugged into an ac outlet)	• Temperature: 15° to 32.5° C (59° to 90.5° F) • Humidity: 10 to 80 percent relative humidity (no condensation)
Storage environment (product not plugged into an ac outlet)	• Temperature: -20° to 40° C (-4° to 104° F) • Humidity: Less than 95 percent relative humidity (no condensation)

Performance

Table 1-3. HP LaserJet 3380 all-in-one performance specifications

Item	Value
Print resolution	1200 by 1200 dpi
Scan resolution	600 by 600 dpi
Print speed, letter-size paper	20 pages per minute (ppm)
Print speed, A4-size paper	19 ppm
Copy speed, letter-size paper	20 ppm
Main input tray capacity	250 sheets of 75 g/m^2 (20 lb bond) paper
Priority input tray capacity	10 sheets of 75 g/m^2 (20 lb bond) paper
ADF input tray capacity	50 sheets of 75 g/m^2 (20 lb bond) paper
Output bin capacity	125 sheets of 75 g/m^2 (20 lb bond) paper

Table 1-3. HP LaserJet 3380 all-in-one performance specifications (continued)

Item	Value
Printer minimum paper size	76 by 127 mm (3 by 5 inches)
Printer maximum paper size	216 by 356 mm (8.5 by 14 inches)
Printer media weight	60 to 163 g/m^2 (16 to 43 lb bond)
ADF minimum paper size	127 by 127 mm (5 by 5 inches)
ADF maximum paper size	216 by 381 mm (8. 5 by 15 inches)
ADF media weight	60 to 90 g/m^2 (16 to 24 lb bond) paper
Flatbed minimum paper size	25.4 by 25.4 mm (1.0 by 1.0 inches)
Flatbed maximum paper size	216 by 356 mm (8.5 by 14 inches)
Flatbed media weight	not applicable
Base memory	4 MB ROM and 32 MB RAM
Print resolution	1,200 dpi
Duty cycle	1,000 pages per month (average)
Printer control language (PCL)	PCL 5e and PCL 6
PostScript (PS)	PS Level 2 emulation

Electrical specifications

WARNING! Power requirements are based on the country/region where the product is sold. Do not convert operating voltages. This might damage the product and void the product warranty.

Table 1-4. HP LaserJet 3380 all-in-one electrical specifications

Item [1]	110-volt models [2]	220-volt models
Power requirements	110 to 127 V (+/- 10 percent) 50 to 60 Hz (+/- 2 Hz)	220 to 240 V (+/- 10 percent) 50 to 60 Hz (+/- 2 Hz)
Minimum recommended circuit capacity for typical product	4.5 amps	2.3 amps
Power Consumption (average, in watts) During printing (20 ppm)	330 W (average)	330 W (average)
During standby	14 W (average)	14 W (average)
Power Save mode	9 W (average)	9 W (average)
Off	0 W (average)	0 W (average)

[1] Values subject to change. See http://www.hp.com/support/lj3380 for current information.
[2] Note: The 110-volt and 220-volt power sources are not interchangeable.

Acoustic emissions

Table 1-5. HP LaserJet 3380 all-in-one acoustic emissions

Category	Specification
Sound power level	**Declared per ISO 9296**
Printing (20 ppm) Idle	L_{WAd}=6.1 Bels (A) [61 dB (A)] Essentially inaudible
SPL - Bystander position	**Declared per ISO 9296**
Printing (20 ppm) Idle	L_{pAm}=48 dB(A) Essentially inaudible

[1] Values subject to change. See http://www.hp.com/support/lj3380 for current information. During other operations, acoustic emissions can vary.

Skew specifications

Note

The media registration defines how a sheet of media is positioned relative to the electrophotographic image on the drum. The specified tolerances do not include variation from nominal in the media dimensions. All vertical lines will be parallel to the reference, or left edge of the media, within the specifications.

Table 1-6. HP LaserJet 3380 all-in-one skew specifications

Category	Specification
Print skew—All vertical lines are parallel to the left edge of the print media.	0.80% (2.0 mm over 250 mm [0.079 inch over 9.84 inches] in length) for cut-sheet media (except A5 size) 1.50% (3.3 mm over 220 mm [0.13 inch over 8.66 inches] in length) for envelopes, postcards, and A5-size media 0.87% (1.65 mm over 190 mm [1.065 inches over 7.48 inches] in width) for cut-sheet media (leading edge)
First line/leading edge skew—The distance of the first line on the page from the leading edge of the page.	4.23 mm ± 2.0 mm (0.16 inch ± 0.07 inch) for cut-sheet media 4.23 mm ± 2.5 mm (0.16 inch ± 0.09 inch) for thick media over 105 g/m^2 (28 lb) 15.0 mm ± 3.5 mm (0.59 inch ± 0.13 inch) for envelopes and postcards
Left margin—The distance of the left-most vertical line from the left edge of the page.	4.23 mm ± 2.0 mm (0.16 inch ± 0.07 inch) for cut-sheet media 15.0 mm ± 3.5 mm (0.59 inch ± 0.13 inch) for envelopes and postcards

Table 1-6. HP LaserJet 3380 all-in-one skew specifications (continued)

Category	Specification
Parallelism	All vertical lines must be parallel within an absolute value of 0.6% [1.5 mm over 250 mm (0.05 inch over 9.85 inches) in length] for letter-size cut-sheet media.

Fax specifications

Table 1-7. HP LaserJet 3380 all-in-one fax specifications

Category	Specification
Fax transmission speed	3 seconds/page (ITU-T Test Image #1)
Fax compatibility	ITU Group 3; ECM
Fax coding schemes	MH, MR, and MMR
Modem speed	Up to 33,600 bits per second (bps)
Speed dialing	Yes
Distinctive ring detect	Yes
Fax resolution (standard)	203 by 98 dots per inch (dpi)
Fax resolution (fine)	203 by 196 dpi
Fax resolution (superfine)	300 by 300 dpi (no halftone)
Fax resolution (photo)	300 by 300 dpi (halftone enabled)

Printable area (margins)

For printed and copied documents, the product can print within the following margins:

- **top**: 4.2 mm (0.17 inches)
- **bottom**: 5 mm (0.20 inches)
- **left**: 4.2 mm (0.17 inches)
- **right**: 4.2 mm (0.17 inches)

For scanned documents, the margins are determined by the scanning software. The original document's size must be within the size ranges for the ADF or flatbed scanner. See Table 1-3. HP LaserJet 3380 all-in-one performance specifications for the size ranges.

Battery specifications

Table 1-8. HP LaserJet 3380 all-in-one battery

Description	Specification
Battery material	Polycarbon monoflouride lithium

Table 1-8. HP LaserJet 3380 all-in-one battery (continued)

Description	Specification
Battery type	Button or coin cell battery (soldered to formatter, not replaceable)
Quantity per unit	1
Weight	Approximately 1 gram (0.04 ounce)
Lithium type	Solid
Battery manufacturers	Rayovac of Madison, Wisconsin, USA; and Panasonic of Secaucus, New Jersey, USA

Warranty statement

HP PRODUCT	DURATION OF LIMITED WARRANTY
HP LaserJet 3380 all-in-one	One year from date of purchase.

HP warrants to you, the end-user customer, that HP hardware, accessories, and supplies, will be free from defects in materials and workmanship after the date of purchase, for the period specified above. If HP receives notice of such defects during the warranty period, HP will, at its option, either repair or replace products which prove to be defective. Replacement products may be either new or like new.

HP warrants to you that HP software will not fail to execute its programming instructions after the date of purchase, for the period specified above, due to defects in material and workmanship when properly installed and used. If HP receives notice of such defects during the warranty period, HP will replace software media which does not execute its programming instructions due to such defects.

HP does not warrant that the operation of HP products will be uninterrupted or error-free. If HP is unable, within a reasonable time, to repair or replace any product to a condition as warranted, you will be entitled to a refund of the purchase price upon prompt return of the product.

HP products may contain remanufactured parts equivalent to new in performance or may have been subject to incidental use.

Warranty does not apply to defects resulting from (a) improper or inadequate maintenance or calibration, (b) software, interfacing, parts, or supplies not supplied by HP, (c) unauthorized modification or misuse, (d) operation outside of the published environmental specifications for the product, or (d) improper site preparation or maintenance.

HP MAKES NO OTHER EXPRESS WARRANTY OR CONDITION WHETHER WRITTEN OR ORAL. TO THE EXTENT ALLOWED BY LOCAL LAW, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, SATISFACTORY QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY SET FORTH ABOVE. Some countries/regions, states, or provinces do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion might not apply to you. This warranty gives you specific legal rights and you might also have other rights that vary from country/region to country/region, state to state, or province to province. TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE YOUR SOLE AND EXCLUSIVE REMEDIES. EXCEPT AS INDICATED ABOVE, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR LOSS OF DATA OR FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. Some countries/regions, states, or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

FOR CONSUMER TRANSACTIONS IN AUSTRALIA AND NEW ZEALAND, THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

HP MAKES NO OTHER EXPRESS WARRANTY OR CONDITION WHETHER WRITTEN OR ORAL. TO THE EXTENT ALLOWED BY LOCAL LAW, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, SATISFACTORY QUALITY, OR FITNESS FOR A PARTICULAR PURPOSE IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY SET FORTH ABOVE. Some countries/regions, states, or provinces do not allow limitations on the duration of an implied warranty, so the above limitation or exclusion might not apply to you. This warranty gives you specific legal rights and you might also have other rights that vary from country/region to country/region, state to state, or province to province.

HP’s Premium Protection print-cartridge warranty

Limited warranty statement

This HP print cartridge is warranted to be free from defects in materials and workmanship.

This warranty does not apply to print cartridges that (a) have been refilled, refurbished, remanufactured or tampered with in any way, (b) experience problems resulting from misuse, improper storage, or operation outside of the published environmental specifications for the printer product or (c) exhibit wear from ordinary use.

To obtain warranty service, please return the product to place of purchase (with a written description of the problem and print samples) or contact HP customer support. At HP’s option, HP will either replace products that prove to be defective or refund your purchase price.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTY IS EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE.

TO THE EXTENT ALLOWED BY LOCAL LAW, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE.

THE WARRANTY TERMS CONTAINED IN THIS STATEMENT, EXCEPT TO THE EXTENT LAWFULLY PERMITTED, DO NOT EXCLUDE, RESTRICT OR MODIFY AND ARE IN ADDITION TO THE MANDATORY STATUTORY RIGHTS APPLICABLE TO THE SALE OF THIS PRODUCT TO YOU.

Extended warranty

In most countries/regions, HP Care Pack provides additional coverage, beyond standard warranty, for the HP device and for all HP-supplied internal components. This hardware maintenance can uplift the standard warranty, for example, from next-day to same-day service, and/or extend it up to 5 years. HP Care Pack can also provide Express Exchange or onsite service. For more information, see the support flyer that came with your device for the appropriate phone numbers and information.

Print-cartridge information

The print cartridge is designed to simplify replacement of the major consumable parts. The print cartridge contains the printing mechanism and a supply of toner.

At 5 percent page coverage, a standard print cartridge will print approximately 2,500 pages. As page coverage increases, yield decreases. These estimates are only approximate; usage conditions and print patterns can cause results to vary.

Refilled print cartridges

While Hewlett-Packard does not prohibit the use of refilled print cartridges during the warranty period or while the product is under a maintenance contract, it is not recommended for the following reasons:

- Repairs resulting from the use of refilled cartridges are not covered under Hewlett-Packard warranty or maintenance contracts.
- Hewlett-Packard has no controls or processes to ensure that a refilled cartridge functions at the high level of reliability of a new HP LaserJet print cartridge. Hewlett-Packard also cannot predict the long-term reliability effect on the product from using different toner formulations found in refilled cartridges.
- The print quality of HP LaserJet print cartridges influences the customer's perception of the product. Hewlett-Packard has no control over the actual print quality of a refilled cartridge.
- Parts that are critical to print quality might not be replaced when the cartridge is refilled with toner.

HP LaserJet printing supplies

In many countries/regions, this product's printing supplies (for example the print cartridge) can be returned to HP through the HP Printing Supplies Returns and Recycling Program. An easy-to-use and free take-back program is available in more than 30 countries/regions. Multilingual program information and instructions are included in every new HP LaserJet print cartridge and supplies package.

HP Printing Supplies Returns and Recycling Program information

Since 1990, the HP Printing Supplies Returns and Recycling Program has collected millions of used LaserJet print cartridges that otherwise might have been discarded in the world's landfills. The HP LaserJet print cartridges and supplies are collected and bulk shipped to our resource and recovery partners, who disassemble the cartridges. Remaining materials are separated and converted into raw materials for use by other industries to make a variety of useful products.

U.S. returns

For a more environmentally responsible return of used cartridges and supplies, HP encourages the use of bulk returns. Simply bundle two or more cartridges together and use the single, pre-paid, pre-addressed UPS label that is supplied in the package that the new cartridge comes in. For more information in the U.S., call (1) (800) 340-2445 or visit the HP LaserJet Supplies website at http://www.hp.com/recycle.

Non-U.S. returns

Non-U.S. customers should call the local HP Sales and Service office or visit the http://www.hp.com/recycle website for further information regarding availability of the HP Supplies Returns and Recycling program.

FCC regulations

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase separation between equipment and receiver.
- Connect equipment to an outlet on a circuit different from that to which the receiver is located.
- Consult your dealer or an experienced radio/TV technician.

Note Any changes or modifications to the printer that are not expressly approved by HP could void the user's authority to operate this equipment.

Note Use of a shielded interface cable is required to comply with the Class B limits of Part 15 of FCC rules.

FCC Part 68 Requirements (United States)

This equipment complies with FCC rules, Part 68. On the back of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company. The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all, areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area.

This equipment uses the following USOC jacks: RJ11C.

An FCC-compliant telephone cord and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 compliant. This equipment cannot be used on telephone company-provided coin service. Connection to Party Line Service is subject to state tariffs. If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service. If trouble is experienced with this equipment, please see the numbers in the front of this manual for repair and (or) warranty information. If the trouble is causing harm to the telephone network, the telephone company may request you remove the equipment from the network until the problem is resolved. The following repairs can be done by the customer: Replace any original equipment that came with the product. This includes the print cartridge, the supports for trays and bins, the power cord, and the telephone cord. It is recommended that the customer install an ac surge arrestor in the ac outlet to which this device is connected. This is to avoid damage to the equipment caused by local lightning strikes and other electrical surges.

Telephone Consumer Protection Act (United States)

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity, or individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided cannot be a 900 number or any other number for which charges exceed local or long-distance transmission charges.) In order to program this information into a fax, please see the fax guide.

IC CS-03 requirements

NOTICE: The Industry Canada label identifies certified equipment. This certification means the equipment meets certain telecommunications network protective, operational, and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirement document(s). The Department does not guarantee the equipment will operate to the user's satisfaction. Before installing this equipment, users should ensure that it is permissible for the equipment to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution can be particularly important in rural areas.

CAUTION

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate. The Ringer Equivalence Number (REN) of this product is 0.7.

Notice: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Number of all the devices does not exceed five (5.0). The standard connecting arrangement code (telephone jack type) for equipment with direct connections to the telephone network is CA11A.

Declaration of Conformity

Declaration of Conformity
according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name:	Hewlett-Packard Company
Manufacturer's Address:	11311 Chinden Boulevard Boise, Idaho 83714-1021, USA

declares that the product

Product Name:	LaserJet 3380 all-in-one
Regulatory Model Number:	BOISB-0303-00
Product Options:	All

conforms to the following Product Specifications:

Safety:	IEC 60950:1999 / EN 60950:2000 IEC 60825-1:1993 + A1:1996 + A2:2001 / EN 60825-1:1994 + A11:1996 + A2:2001 (Class 1 Laser/LED Product) GB4943-1995
EMC:	CISPR 22:1998 / EN 55022:1998 - Class B[1] EN 61000-3-2:1995 / A14:2000 EN 61000-3-3:1995 EN 55024:1998 FCC Title 47 CFR, Part 15 Class B[2] / ICES-003, Issue 3 GB9254-1998 **Telecom:** TBR-21:1998; EG 201 121:1998

Supplementary Information:

The product herewith complies with the requirements of the EMC Directive 89/336/EEC, the Low Voltage Directive 73/23/EEC, the R&TTE Directive 1995/5/EC (Annex II), and carries the CE-Marking accordingly:

[1] The product was tested in a typical configuration with Hewlett-Packard Personal Computer Systems.

[2] This Device complies with Part 15 of the FCC Rules. Operation is subject to the following two Conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

[3] For regulatory purposes, this product is assigned a Regulatory model number. This number should not be confused with the marketing name (HP LaserJet 3380) or the product number (Q2660A).

Boise, Idaho 83714, U.S.A.

November 1, 2003

For regulatory topics only:

Australia Contact	Product Regulations Manager, Hewlett-Packard Australia, Ltd. 31-41 Joseph Street Blackburn, Victoria 3130, Australia
European Contact	Your Local Hewlett-Packard Sales and Service Office or Hewlett-Packard Gmbh, Department HQ-TRE / Standards Europe Herrenberger Strasse 140 Böblingen, D-71034, (+49-7031-14-3143)
USA Contact	Product Relations Manager, Hewlett-Packard Company PO Box 15, Mail Stop 160 Boise, ID 83707-0015, USA (208-396-6000)

Safety statements

Laser safety statement

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration has implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States. This printer is certified as a “Class 1” laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside this printer is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

WARNING! Using controls, making adjustments, or performing procedures other than those specified in this manual can result in exposure to hazardous radiation.

Canada DOC regulations

This equipment complies with Canadian EMC Class B requirements.

Conforme á la classe B des normes canadiennes de compatibilité électromagnétiques. << CEM>>.

Laser statement for Finland

LASERTURVALLISUUS
LUOKAN 1 LASERLAITE
KLASS 1 LASER APPARAT
HP LaserJet 3380 all-in-one-laserkirjoitin on käyttäjän kannalta turvallinen luokan 1 laserlaite. Normaalissa käytössä kirjoittimen suojakotelointi estää lasersäteen pääsyn laitteen ulkopuolelle.
Laitteen turvallisuusluokka on määritetty standardin EN 60825-1:1994 + A11:1996 + A2:2001 mukaisesti.
VAROITUS!
Laitteen käyttäminen muulla kuin käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.
VARNING!
Om apparaten används på annat sätt än i bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.
HUOLTO
HP LaserJet 3380 all-in-one-kirjoittimen sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen koulutettu henkilö. Tällaiseksi huoltotoimenpiteeksi ei katsota väriainekasetin vaihtamista, paperiradan puhdistusta tai muita käyttäjän käsikirjassa lueteltuja, käyttäjän tehtäväksi tarkoitettuja ylläpitotoimia, jotka voidaan suorittaa ilman erikoistyökaluja.
VARO!
Mikäli kirjoittimen suojakotelo avataan, olet alttiina näkymättömälle lasersäteilylle laitteen ollessa toiminnassa. Älä katso säteeseen.
VARNING!
Om laserprinterns skyddshölje öppnas då apparaten är i funktion, utsättas användaren för osynlig laserstrålning. Betrakta ej strålen.
Tiedot laitteessa käytettävän laserdiodin säteilyominaisuuksista:
Aallonpituus 770-795 nm
Teho 5 mW
Luokan 3B laser

Korean EMI statement

사용자 안내문 (B급 기기)

이 기기는 비업무용으로 전자파장해 검정을 받은 기기로서, 주거지역에서는 물론 모든지역에서 사용할 수 있읍나다.

Australia

This equipment complies with Australian EMC requirements.

Regulatory information for the European Union countries/regions

This equipment has been designed to work in all of the countries/regions of the European Economic Area (Public Switched Telephone Networks) only. Network compatibility is dependent on internal software settings. Contact your equipment supplier if it is necessary to use the equipment on a different telephone network. For further product support, contact Hewlett-Packard at the phone numbers provided in the support flyer that came with the product.

2 Operation

This chapter provides information about setting up and using the HP LaserJet 3380 all-in-one.

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Operating environment

Place the product on a sturdy, level surface in a well-ventilated area that meets the following environmental requirements:

- temperature: 15° to 32.5° C (59° to 90.5° F)
- humidity: 10 to 80 percent relative humidity (no condensation)
- away from direct sunlight, open flames, and ammonia fumes
- sufficient space around the product to allow for access and ventilation

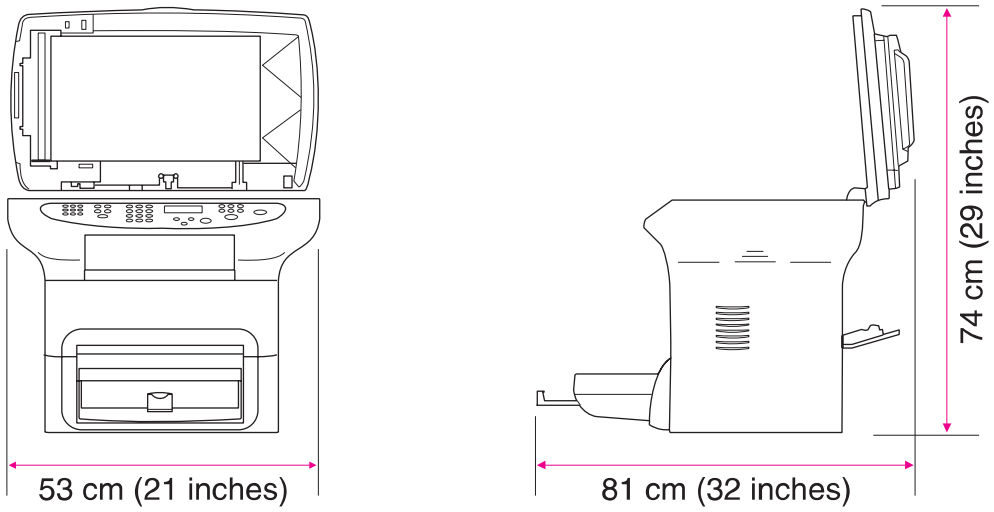


Figure 2-1. **Product dimensions**

Identifying the control-panel components

This section provides details about the control-panel components.

Fax controls

Use the fax controls to send and receive faxes. These controls and the fax menu or software are used to change commonly used fax settings. For complete instructions about using the product's fax features, see the fax guide.

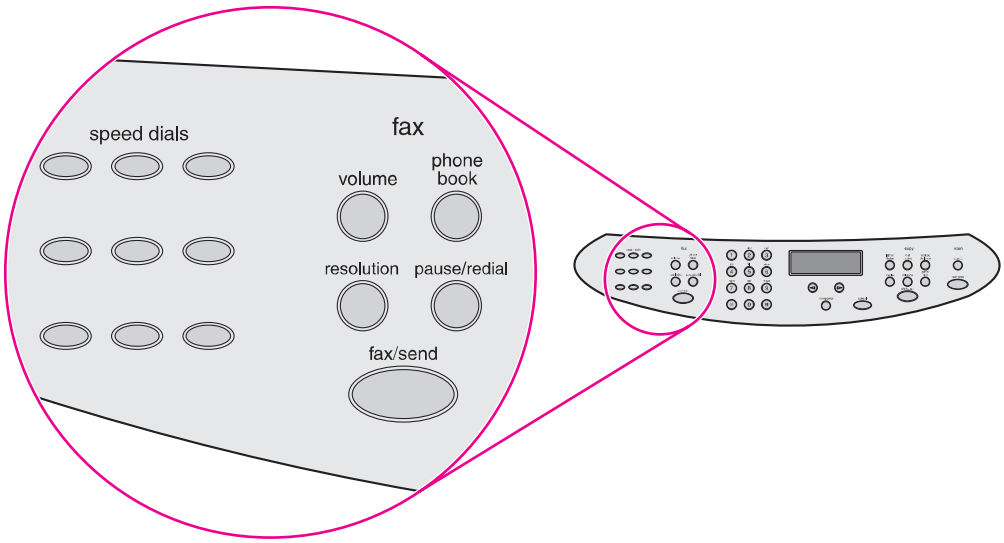


Figure 2-2. **Fax controls**

The product has extensive faxing capabilities. For a full description of the fax capabilities, see the fax guide.

Alphanumeric buttons

Use the alphanumeric buttons to type fax data into the control-panel display screen and to dial phone numbers for faxing. For a full description of using the alphanumeric buttons, see the fax guide.

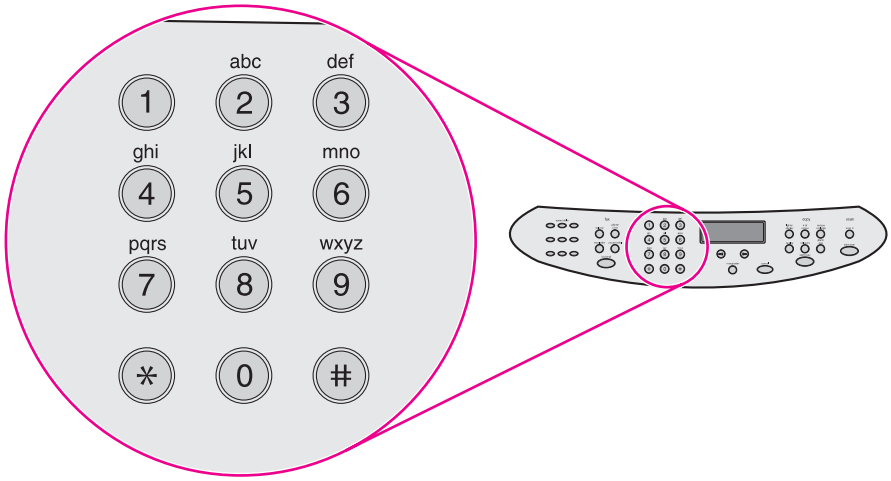


Figure 2-3. **Alphanumeric buttons**

Menu and cancel controls

Use these controls to select menu options, determine the product status, and cancel the current job.

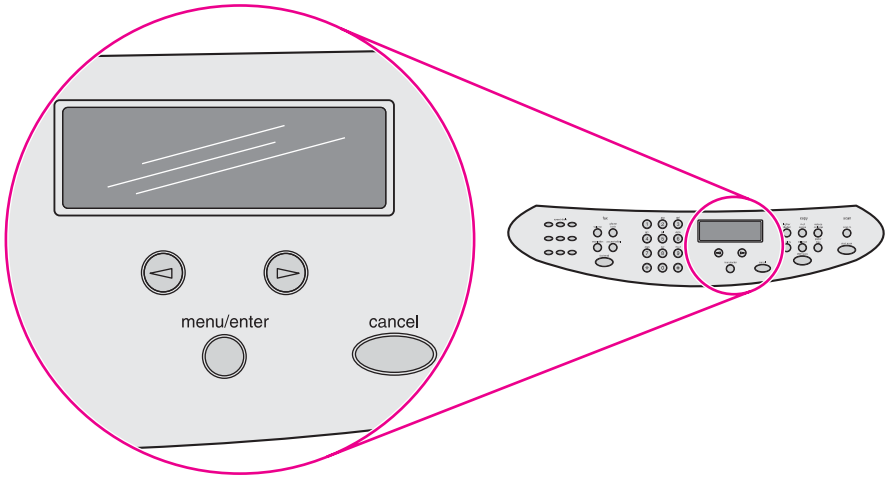


Figure 2-4. **Menu and cancel controls**

Copy, scan, and start controls

Use these controls to change commonly used default settings, to start scanning, or to start copying. For instructions about copying, see "Copying" in the user guide. For instructions about scanning, see "Scanning" in the user guide. The user guide is on the product CD.

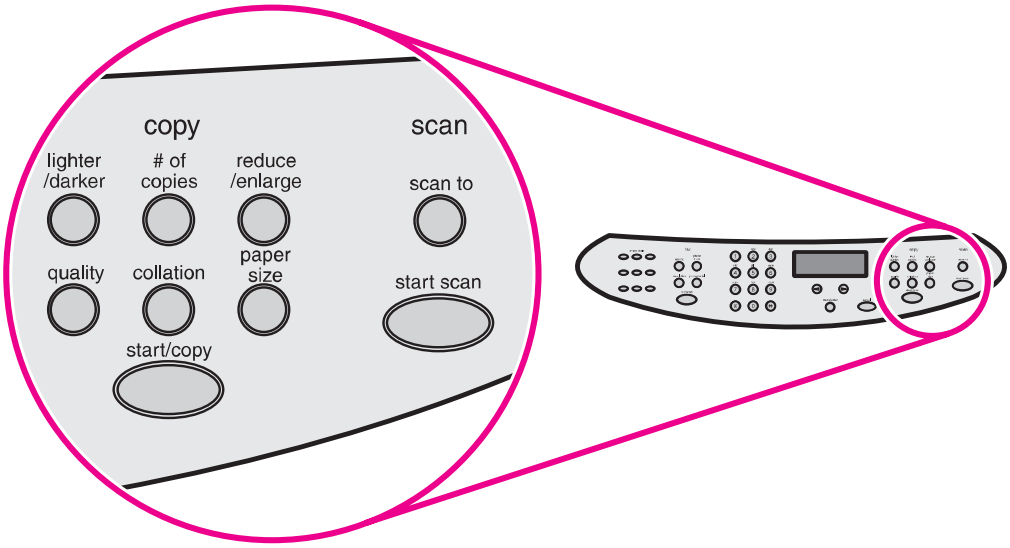


Figure 2-5. **Copy, scan, and start controls**

Control-panel menu structure

Use the following hierarchical diagram of the control-panel menu structure to make changes to settings and features.

To use the control-panel buttons

1. Press MENU/ENTER to begin.
2. Use the < or > button to select one of the options from the main menu, and then press MENU/ENTER.
3. Use the < or > button to select one of the options from the submenu, and then press MENU/ENTER.
4. If applicable, use the < or > button to select one of the options from the second submenu, and then press MENU/ENTER.

To print the control-panel menu structure

1. Press MENU/ENTER.
2. Use the < or > button to select **Reports**, and then press MENU/ENTER.
3. Use the < or > button to select **Menu structure**, and then press MENU/ENTER. The product exits the menu settings and prints the report.

To see which settings are currently selected, print a configuration report. See Troubleshooting tools for instructions.

Table 2-1. Control-panel menu structure

Main Menu	Submenu	Submenu	Submenu
Fax Job status			
Fax Functions	**Send fax later** **Stop Recv to PC** **Reprint last** **Polling receive** **Clear saved faxs**		
Time/Date, Header	**Time/Date** **Fax Header**		
Copy setup	**Default Quality** **Def. Light/Dark** **Def. Collation** **Def. # of copies** **Def. Redu/Enlrg**		

Table 2-1. Control-panel menu structure (continued)

Main Menu	Submenu	Submenu	Submenu
Reports	Demo Page		
	Fax Activity log	Print log now Auto Log Print	
	Fax Call report	Print report now Print report Include 1st page	
	PhoneBook report Menu structure Config report Block Fax list Billing report Usage page PCL Font list PS Font list All fax reports		

Table 2-1. Control-panel menu structure (continued)

Main Menu	Submenu	Submenu	Submenu
Fax setup	Phone Book	Individual setup	Add Delete
		Group setup	Add/Edit group Delete group Del. # In group
		Delete all	
	Fax Send setup	Def. Resolution Def. Light/Dark Def. Glass Size Dialing Mode Redial if busy Redial-no answer Redial Comm Err. Dial Prefix Detect dial tone Billing codes	
	Fax Recv. setup	Answer mode Rings To answer Answer Ring Type Extension Phone Silence Detect Fit to page Stamp faxes Forward fax	
		Block faxes	Add entry Delete entry Clear all
	All faxes	Error correction V.34	
Common settings	Language Def. Paper Size Print Density		
	Volume settings	Alarm volume Ring volume Key Press volume PhoneLine Volume	

Table 2-1. Control-panel menu structure (continued)

Main Menu	Submenu	Submenu	Submenu
Service	**Print T.30 trace** **Restore defaults** **Cleaning Mode** **Power Save time** **Less paper curl**		

Product media specifications

The product accepts a variety of media. Properties such as weight, grain, and moisture content are important factors that affect printer performance and output quality. Media should conform to the guidelines in the user guide on the product CD. Media that does not meet HP guidelines might cause poor print quality, increased jams, or premature wear on the product.

CAUTION Damage caused by media that does not meet HP's specifications is not covered by the HP warranty or service agreements.

Supported media sizes and types

The printer supports media within this size range:

- **Minimum:** 76 by 127 mm (3 by 5 inches)
- **Maximum:** 216 by 356 mm (8.5 by 14 inches)

The ADF supports media within this size range:

- **Minimum:** (127 by 127 mm) (5 by 5 inches)
- **Maximum:** (216 by 381 mm) (8.5 by 15 inches)

Media-type settings control the temperature of the fuser. To optimize the print quality, change the settings to match the media that you are using. The following are the media types that the product supports and the associated fuser mode.

Note Narrow and heavy media can cause the printer to print more slowly.

Table 2-2. Supported media types

Media type	Fuser mode
Plain	Normal
Preprinted	Normal
Letterhead	Normal
Transparency	OHT
Prepunched	Normal
Labels	Thick
Bond	Thick
Recycled	Normal
Color	Normal
Light <75 g/m^2	Low
Heavy (90 to 105 g/m^2)	Thick
Cardstock (105 to 176 g/m^2)	Extra Rough
Envelope	Envelope

Table 2-2. Supported media types (continued)

Media type	Fuser mode
Rough	Thick
Unspecified	Uses default setting

Guidelines for using media

Use the information in this section to choose the proper print media.

Paper and transparencies

Paper must be of good quality and free of cuts, nicks, tears, spots, loose particles, dust, wrinkles, holes, and curled or bent edges. Check the label on the paper package for details about the type of paper (such as bond or recycled).

Some paper causes print-quality problems, jamming, or damage to the printer.

Note

Do not use letterhead that is printed with low-temperature inks, such as those used in some types of thermography; raised letterhead; or colored paper or preprinted forms that use inks incompatible with the printer temperature (200° C, or 392° F, for 0.1 second).

Transparencies must be able to withstand 200° C (392° F), the printer's maximum temperature.

Common media problems

Table 2-3. Common media problems

Symptom	Problem with paper	Solution
Poor print quality or problems with feeding.	Too moist, too rough, too smooth, or embossed. Faulty lot.	Try another kind of paper between 100 and 250 Sheffield. Use a fresh ream of paper to ensure proper moisture content.
Poor toner adhesion	Too smooth.	Try another kind of paper between 100 and 250 Sheffield. Make sure the proper paper type is selected, so the fuser is set for the proper mode.
Dropouts, jamming, or curl.	Stored improperly.	Store paper flat in its moisture-proof wrapping.
Gray area along the edge of the page.	Media might be too heavy.	Use a lighter-weight media.
Increased gray background shading.	Might be too dark, or you are using recycled paper.	Use whiter-colored media. Reduce the contrast by pressing the LIGHTER/DARKER button on the control panel.

Table 2-3. Common media problems (continued)

Symptom	Problem with paper	Solution
Excessive curl, or problems with feeding.	Too moist, wrong grain direction, or short-grain construction.	Use long-grain paper. Print using the straight-through output path. For copy or fax jobs, select **less paper curl** in the service menu. For print jobs, select a lighter-weight media type from the printer driver or the HP Toolbox.
Jamming, or damage to printer.	Cutouts or perforations.	Do not use media that has cutouts or perforations.
Problems with feeding.	Ragged edges.	Use good-quality media.

Labels

Note For best results, use only HP-brand labels. To order HP supplies, visit http://www.hp.com.

When selecting labels, consider the following factors:

- **Adhesives:** The adhesive material should be stable at 200° C (392° F), the product's maximum temperature.
- **Arrangement:** Use only labels that have no exposed backing between them. Labels can peel off sheets that have spaces between the labels, causing serious jams.
- **Curl:** Prior to printing, labels must lie flat with no more than 13 mm (0.5 inch) of curl in any direction.
- **Condition:** Do not use labels that contain wrinkles, bubbles, or other indications of separation. Never use a sheet of labels that has already been run through the printer.

Envelopes

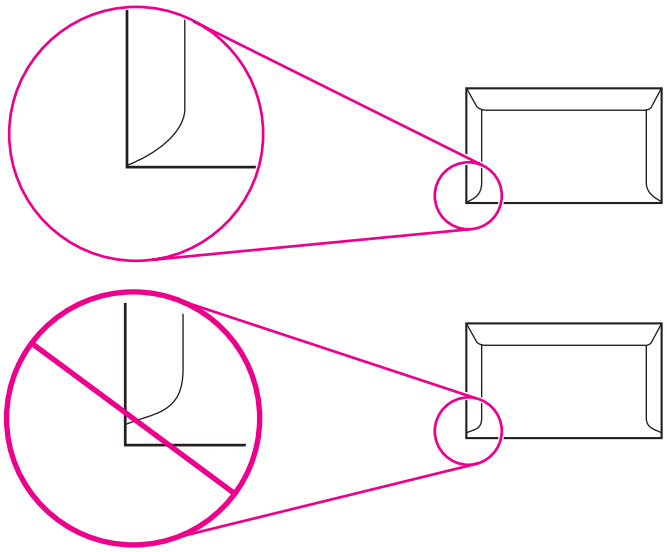
Envelope construction is critical. Envelope fold lines can vary considerably, not only between manufacturers, but also within a box from the same manufacturer. Successful printing on envelopes depends on the quality of the envelopes. When selecting envelopes, consider the following factors:

- **Weight:** The weight of the envelope paper should not exceed 105 g/m^2 (28 lb), or jamming might result.
- **Construction:** Before printing, envelopes should lie flat with less than 6 mm (0.25 inch) curl and should not contain air. Envelopes that trap air can cause problems.
- **Condition:** Make sure that the envelopes are not wrinkled, nicked, or otherwise damaged.
- **Sizes:** Supported envelope sizes range from 90 by 160 mm (3.5 by 6.3 inches) to 178 by 254 mm (7 by 10 inches).

Store envelopes flat. If air is trapped in an envelope, creating an air bubble, the envelope might wrinkle during printing.

Envelopes with double-side seams

An envelope with double-side-seam construction has vertical seams at both ends of the envelope rather than diagonal seams. This style is more likely to wrinkle during printing. Make sure that the seam extends all the way to the corner of the envelope as shown in the following illustration:



Envelopes with adhesive strips or flaps

Envelopes with a peel-off adhesive strip or with more than one flap that folds over to seal must use adhesives that are compatible with the heat (200° C, or 392° F) and pressure in the printer. The extra flaps and strips might cause wrinkling, creasing, or jams.

Envelope storage

Store envelopes flat to ensure good print quality. If air is trapped in and envelope, creating an air bubble, the envelope might wrinkle during printing.

Card stock and heavy media

Some card stock performs better than others because the construction is better suited for feeding through a laser device. For optimum performance, do not use media that is heavier than 163 g/m ^{2} (43 lb). Media that is too heavy might cause misfeeds, stacking problems, jams, poor toner fusing, poor print quality, or excessive mechanical wear.

Note

You might be able to print on heavier media if you do not fill the input tray to capacity and if you use media that has a smoothness rating of 100 to 180 Sheffield. Use the straight-through paper path for heavier media.

Card stock construction

- **Smoothness:** 135 to163 g/m ^{2} (36 to 43 lb) card stock should have a smoothness rating of 100 to 180 Sheffield. 60 to 135 g/m ^{2} (16 to 36 lb) card stock should have a smoothness rating of 100 to 250 Sheffield.
- **Construction:** Card stock should lie flat with less than 5 mm (0.2 inch) of curl.

- **Condition:** Make sure that the card stock is not wrinkled, nicked, or otherwise damaged.
- **Sizes:** Use only card stock within the following size range:
  - **Minimum:** 76 by 127 mm (3 by 5 inches)
  - **Maximum:** 216 by 356 mm (8.5 by 14 inches)

Card stock guidelines

- If the card stock curls or jams, use the straight-through output path.
- Set margins at least 2 mm (0.08 inch) away from the edges.

Loading media

This section provides information about loading media in the input trays.

Media input tray

The media input tray holds up to 250 sheets of 75-g/m^2 (20-lb) paper or a 25-mm (0.98-inch) stack of heavier media. Load media with the top forward and the side to be printed on facing up. To prevent jams and skew, always adjust the side media guides.

Priority input tray

The priority input tray holds up to ten pages of 75-g/m^2 (20-lb) paper or one envelope, transparency, or card. Load media with the top forward and the side to be printed on facing up. To prevent jams and skew, always adjust the side media guides.

If you try to print on media that is wrinkled, folded, or damaged in any way, a jam might occur. See the user guide on the product CD for more information.

Note When you add new media, make sure that you remove all of the media from the input tray and straighten the stack of new media. This helps prevent multiple sheets of media from feeding through the printer at one time, reducing jams.

Specific types of media

- **Transparencies and labels:** Load transparencies and labels with the top forward and the side to be printed on facing up. See the user guide on the product CD for more information.
- **Envelopes:** Load envelopes with the narrow, stamp side forward and the side to be printed on facing up. See the user guide on the product CD for more information.
- **Letterhead and preprinted forms:** Load with the top forward and the side to be printed on facing up. See the user guide for more information.
- **Cards and custom-sized media:** Load with the narrow side forward and the side to be printed on facing up. See the user guide on the product CD for more information.

Selecting originals for the automatic document feeder (ADF)

Use either the ADF or the flatbed scanner for most copying, scanning, and faxing needs.

Specifications for ADF originals

- **Input capacity:** The ADF holds up to 50 sheets of flat, 60- to 90- g/m^2 (16- to 24-pound) plain paper.
- **Media size:** Use only plain paper that is within the following size range:
  - **Minimum:** 127 mm by 127 mm (5 by 5 inches)
  - **Maximum:** 215.9 mm by 381 mm (8.5 by 15 inches)

Note You must use the flatbed to scan or copy small or delicate originals (such as newsprint, business cards, and photos), or documents that have tears, perforations, or punch holes. If you want to fax such items, first make a copy on the flatbed and then fax the copy.

Perform the following actions to minimize the possibility of jams:

- Remove self-stick notes.
- Remove staples and paper clips.
- Straighten any curls, folds, or wrinkles in documents before putting them into the document feeder tray.
- Do not insert any document that contains glue, correction fluid, or wet ink.
- Do not insert gum-backed paper or labels.
- Avoid multiple-copy forms.
- Do not scan originals that are larger or smaller than supported size limitations. See the user guide on the product CD for more information.

Note To obtain good results, it is important to use the correct re-entry and color settings for the job. See the user guide on the product CD for more information.

Media information for the flatbed

Use the flatbed scanner for copying, scanning, and faxing if the media is fragile, thin, thick, or damaged (folded, wrinkled), or to produce a high-quality copy or file. The flatbed scanner provides the best copy and scan quality.

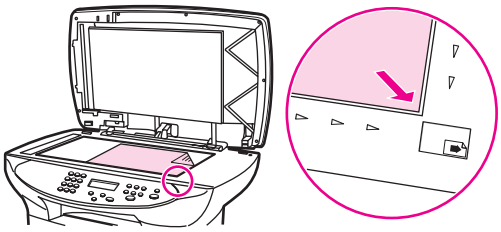
The flatbed has no minimum size specification, and accepts a maximum size of legal-size media (215.9 mm by 355.6 mm, or 8.5 inches by 14 inches). In order to make a copy of a legal-size document, the paper size must be changed by using the PAPER SIZE button. Otherwise, the copy will be cropped to the default paper size.

Loading originals to copy or scan

Use these instructions to load originals into the product for copying or scanning. For the best-quality scans and copies, use the flatbed scanner. See Selecting originals for the automatic document feeder (ADF) for guidelines to choose original documents for scanning and copying.

To load originals onto the flatbed scanner

1. Make sure that the ADF is clear and does not hold media.
2. Lift the flatbed scanner cover.
3. Place the original document face-down on the flatbed scanner, with the top, left corner of the document located in the lower-right corner of the glass.
4. Gently close the lid.
5. The document is ready to be copied or scanned.



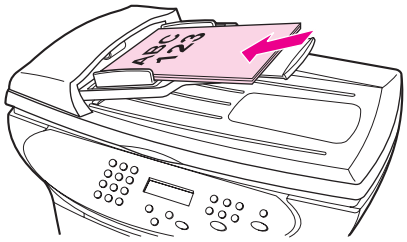
CAUTION To prevent damage to the product, do not allow the scanner lid to fall onto the flatbed scanner surface. Always close the scanner lid when the product is not in use.

To load originals into the ADF input tray

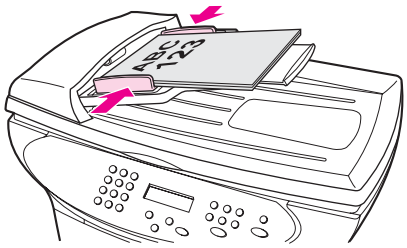
The ADF capacity is up to 50 sheets of 75-g/m^2 (20-lb) media (depending on the thickness of the media), or until the ADF input tray is full.

The minimum size for media in the ADF is 127 by 127 mm (5 by 5 inches). For smaller sizes, use the flatbed scanner. The maximum size for media in the ADF is 215.9 mm wide by 381 mm long (8.5 by 15 inches).

1. Make sure the flatbed scanner is clear and does not hold media.
2. Close the flatbed scanner cover and put the top end of the original media stack into the ADF input tray, with the media stack face-up and the first page to be scanned, copied, or faxed on top of the stack.
3. Slide the media stack into the ADF until the media does not move any farther.



4. Adjust the media guides until they are snug against the sides of the stack.



5. The document is now ready to be copied or scanned.
6. After scanning, the document is delivered to the output tray in the correct order.

Printer output paths

The HP LaserJet 3380 all-in-one has two output paths. Use the main output bin when printing normal and large, collated documents. Use the straight-through output path when printing envelopes, transparencies, heavy media, or any media that tends to curl when printed.

Output bin and straight-through output path

The output bin is located between the scanner and the printer. Printed media is collected here in the correct sequence when the straight-through output door is closed.

To use the straight-through output path, open the straight-through output door on the rear of the product. Multipage documents are delivered in reverse order when the straight-through output door is open.

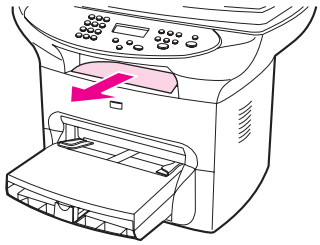


Figure 2-6. **Output bin**

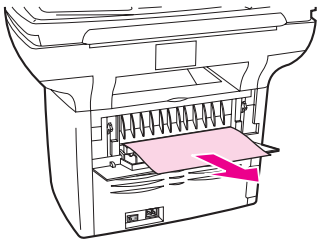


Figure 2-7. **Straight-through output path**

Note Printed media does not stack when using the straight-through output path. The media drops to the surface below unless each sheet is removed as it exits the printer.

3 Maintenance

This chapter provides information about the following topics.

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Life expectancies of parts that wear

When servicing the product, inspect any parts that wear. Replace them as needed, based on failure or wear rather than on usage.

The following table lists approximate schedules for replacing consumables.

Table 3-1. Life expectancies of parts that wear

Description	Part number	Life (estimated)	Remarks
Print cartridge[1] (user-replaceable)	C7115A	2,500 pages	When print becomes faint, redistribute toner in the cartridge by gently shaking the cartridge from side to side.
	C7115X	3,500 pages	
Printer transfer roller	RM1-0550-000CN	50,000 pages	Can affect print quality and paper movement.
Printer pickup roller	RL1-0303-000CN	50,000 pages	Look for glazing and/or cracks. Can affect print quality and paper movement.
Printer separation pad	RF0-1014-020CN	50,000 pages	Can affect paper movement.
Fuser assembly (100-127 V)	RM1-0841-000CN	50,000 pages	Can affect print quality and paper movement.
Fuser assembly (220-240 V)	RM1-0842-000CN	50,000 pages	Can affect print quality and paper movement.
ADF separation pad	C7309-60009	50,000 pages	Can affect movement of documents to be scanned or copied.
ADF	C9143-60107	50,000 pages	Can affect movement of documents to be scanned or copied.
ADF pickup roller assembly	C7309-60016	50,000 pages	Can affect movement of documents to be scanned or copied.

[1]The estimated print cartridge life is based on letter- or A4-sized paper with an average of 5 percent toner coverage and a medium density setting. Print cartridge life can be extended further by using draft-mode settings to conserve toner.

Scanner calibration

The scanner calibrates itself automatically at the start of scan of copy jobs. Normally, you do not need to initiate the calibration, but you can initiate the calibration through the secondary service menu and produce a report that shows the calibration results. See Secondary service menu.

Cleaning the product

WARNING! Before you perform these steps, unplug the product to avoid the shock hazard.

To maintain quality, thoroughly clean the product when these conditions exist:

- any time a new print cartridge is installed
- after printing approximately 2,500 pages
- whenever print-quality problems appear

Clean the outside of the product by using a water-dampened cloth. Clean the inside by using only a dry, lint-free cloth (such as a lens tissue).

To avoid permanent damage to the print cartridge, do not use ammonia-based or ethyl alcohol-based cleaners on or around the product.

WARNING! Avoid touching the heating element in the fuser. It might be very hot and can cause burns.

CAUTION Do not touch the surface of the black-sponge transfer roller. Contaminants on the roller can cause print-quality problems.

Cleaning the glass

Dirty glass, contaminated from fingerprints, smudges, hair, and so on, slows down performance and affects the accuracy of special features, such as fit-to-page and copy. Dirty glass can also cause vertical lines to appear on copies. Use the following procedure to clean the glass.

To clean the glass

1. Use the power switch to turn off the product, unplug the power cord from the electrical socket, and then raise the lid.
2. Clean the glass by using a soft cloth or sponge that has been moistened with nonabrasive glass cleaner.

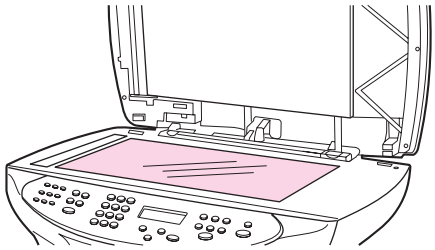

Figure 3-1. **Cleaning the flatbed glass**

CAUTION Do not use abrasives, acetone, benzene, ammonia, ethyl alcohol, or carbon tetrachloride on any part of the product; these can damage the product. Do not place liquids directly on the glass. They might seep under it and damage the product.

3. Clean the scanner strip by using a soft cloth or sponge that has been moistened with nonabrasive glass cleaner.

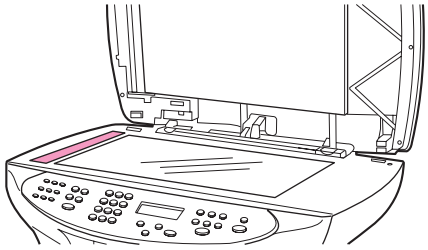

Figure 3-2. **Cleaning the scanner strip**

4. Dry the glass with a chamois or cellulose sponge to prevent spotting.

Note Dust might appear on the underside of the glass, but this cannot be cleaned, and it has no effect on the copy or scan quality.

Cleaning the lid backing

Minor debris can accumulate on the white document lid backing that is located underneath the ADF lid. Use the following procedure to clean the lid backing.

To clean the lid backing

1. Use the power switch to turn off the product, unplug the power cord from the electrical socket, and then raise the lid.
2. Clean the white document lid backing with a soft cloth or sponge that has been moistened with a mild soap and warm water.

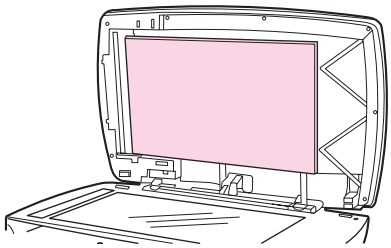

Figure 3-3. **Cleaning the lid backing**

3. Wash the backing gently to loosen debris; do not scrub the backing.
4. Dry the backing with a chamois or soft cloth.

CAUTION Do not use paper-based wipes, as these might scratch the backing.

5. Plug the product in, and use the power switch to turn on the product.
6. If this procedure does not clean the backing thoroughly, repeat the previous steps but use isopropyl alcohol rather than soap and water, and then wipe the backing with a damp cloth to remove any residual alcohol.

Cleaning the paper path

The product features a special cleaning mode to clean the paper path.

Note This process requires using a transparency to remove dust and toner from the print paper path. Do not use bond or rough paper.

Make sure that the transparency used in this cleaning process meets the media requirements for the printer.

If transparency film is unavailable, you can use paper. If you must use paper, perform the procedure two or three times to ensure proper cleaning.

To clean the paper path

1. Load a transparency, if one is available, in the priority input tray.
2. Make sure that the product is in the **Ready** state.
3. Press MENU/ENTER, and then press < or > to highlight **Service**, and then press MENU/ENTER
4. Press < or > to highlight **Cleaning Mode**, and then press MENU/ENTER.
5. The transparency feeds through the printer slowly. Discard the transparency.

Note The FAX/SEND and CANCEL lights blink until the cleaning process is complete.

Note If no transparency is available, use paper instead, but repeat the cleaning process several times.

Cleaning the print-cartridge area

You do not need to clean the print-cartridge area often. However, cleaning this area can improve the quality of your printed sheets. During the printing process, paper, toner, and dust particles can accumulate inside the product. Over time, this buildup can cause print-quality problems, such as toner specks or smearing. To correct and prevent these types of problems, you can clean the print-cartridge area and the media path.

To clean the print-cartridge area

WARNING! Wait for the product to cool before beginning this procedure.

1. Before cleaning the product, use the power switch to turn it off, and then unplug the power cord.

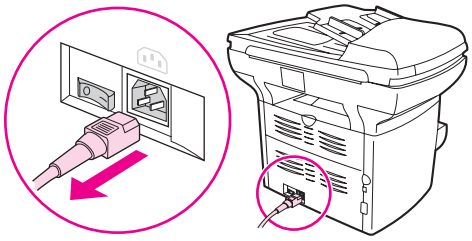

Figure 3-4. **Unplug the product**

2. Open the print-cartridge door, and remove the print cartridge.

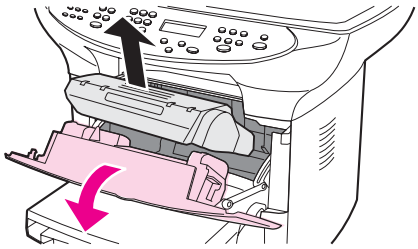

Figure 3-5. **Remove the print cartridge**

CAUTION To prevent damage, do not expose the print cartridge to light. Cover the print cartridge or place it in a black plastic bag, if necessary. Also, do not touch the black-sponge transfer roller inside the device. By doing so, you can damage the product.

3. Use a dry, lint-free cloth, or an HP toner cloth (part number 5090-3379) to wipe any residue from the paper-path area and the print-cartridge cavity.

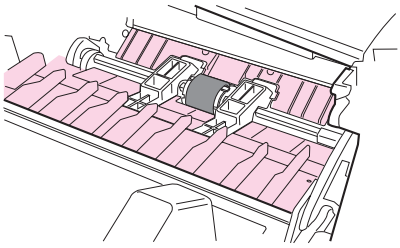

Figure 3-6. **Clean the print-cartridge cavity**

4. Replace the print cartridge, and close the print-cartridge door.

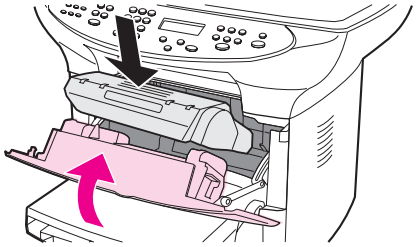

Figure 3-7. **Insert the print cartridge**

5. Plug the product in, and use the power switch to turn on the product.

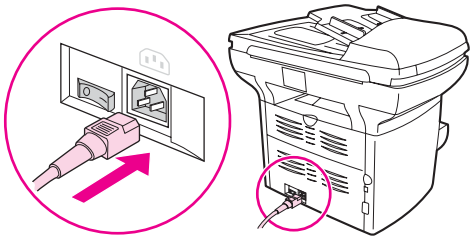

Figure 3-8. **Plug in the product**

WARNING! Do not spray or use water inside the product. Failure to follow this warning can result in severe damage to the product or serious personal injury.

Note If toner gets on your clothing or other fabric, wipe off the toner with a dry cloth. Wash the items in cold water and air-dry them. If toner gets on your hands, wash your hands in cold water.

Hot water or heat from a dryer can set toner into fabric.

Cleaning the pickup roller

If the product regularly picks up multiple sheets of media at one time or picks up no sheets at all, clean or replace the pickup roller. Before replacing the pickup roller, try to clean it. To clean the pickup roller, use the following instructions.

Note When the product picks no sheets of paper, the cause is almost always a dirty or worn pickup roller. When the product picks multiple sheets of paper, the cause is almost always a dirty or worn separation pad. See Cleaning the printer separation pad for instructions.

Note If the product is feeding multiple transparencies at one time, the pickup roller is probably *not* the cause. See Solving print paper-feed problems for more information.

To clean the pickup roller

Remove the pickup roller as described in steps 1 through 5 of To replace the pickup roller.

1. Dampen a lint-free cloth with warm water, and use it to clean the roller.

WARNING! Do not use abrasives, acetone, benzene, ammonia, ethyl alcohol, or carbon tetrachloride on any part of the product; these can damage the product.

2. Using a dry, lint-free cloth, wipe the pickup roller to remove loosened dirt.
3. Allow the pickup roller to dry completely before you reinstall it in the product (see steps 6 through 9 of To replace the pickup roller).

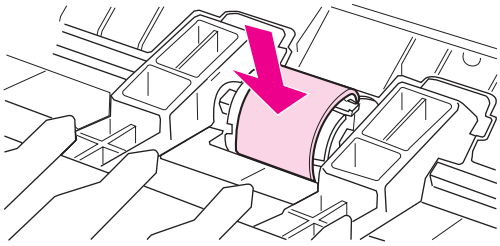

Figure 3-9. **Inserting the pickup roller**

Cleaning the printer separation pad

If you want to clean the separation pad rather than replace it, use the following instructions.

1. Remove the separation pad as described in steps 1 through 5 of Replacing the printer separation pad.

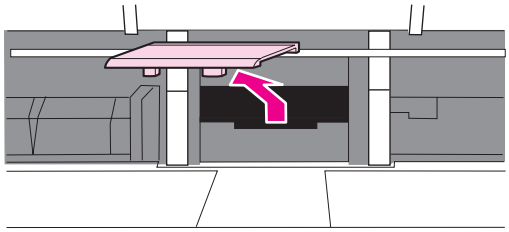

Figure 3-10. **Cleaning the printer separation pad (1 of 4)**

2. Dampen a lint-free cloth with *isopropyl* alcohol, and scrub the separation pad.

WARNING! Alcohol is flammable. Keep the alcohol and cloth away from an open flame. Before you close the product and plug in the power cord, allow the alcohol to dry completely.

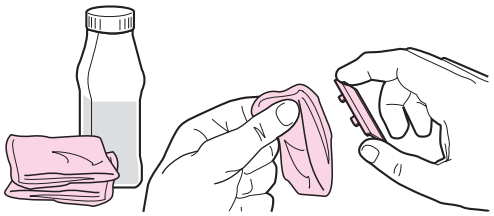

Figure 3-11. **Cleaning the printer separation pad (2 of 4)**

3. Using a dry, lint-free cloth, wipe the pad to remove loosened dirt.

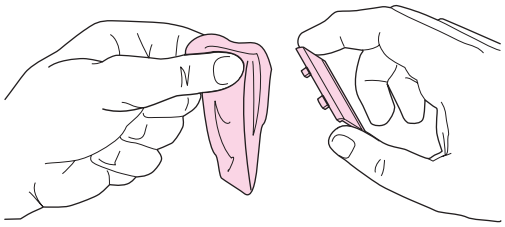

Figure 3-12. **Cleaning the printer separation pad (3 of 4)**

4. Allow the pad to dry completely before you reinstall it in the printer. To reinstall the pad, see steps 6 through 8 of Replacing the printer separation pad.

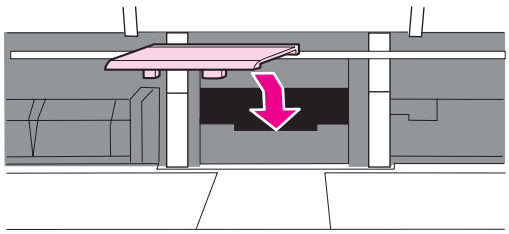

Figure 3-13. **Cleaning the printer separation pad (4 of 4)**

User-replaceable parts

The following sections provide procedures that the user can follow to replace certain parts.

Replacing the pickup roller

If the product does not pick up media from the tray, the cause is almost always a dirty or damaged pickup roller. If cleaning the pickup roller does not resolve the problem, replace the pickup roller.

To replace the pickup roller

CAUTION Failure to complete this procedure might damage the product.

1. Use the power switch to turn off the product, and then unplug the power cord. Allow the product to cool.

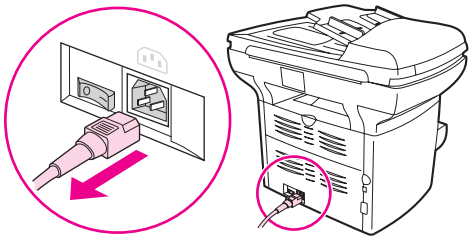

Figure 3-14. **Replacing the pickup roller (1 of 9)**

2. Open the print-cartridge door, and remove the print cartridge.

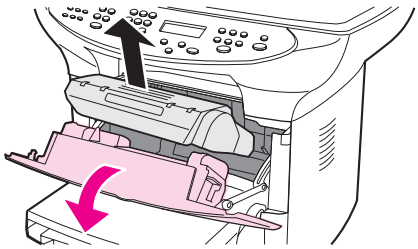

Figure 3-15. **Replacing the pickup roller (2 of 9)**

CAUTION To prevent damage, do not expose the print cartridge to light. Cover the print cartridge or place it in a black plastic bag, if necessary. Also, do not touch the black-sponge transfer roller inside the product. Touching the transfer roller can damage the product.

3. Find the pickup roller.

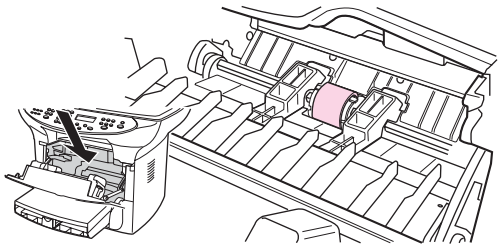

Figure 3-16. **Replacing the pickup roller (3 of 9)**

4. Release the small, black tabs on either side of the pickup roller, and rotate the pickup roller toward the front.

Note Use gentle pressure to release the tabs to avoid breaking them.

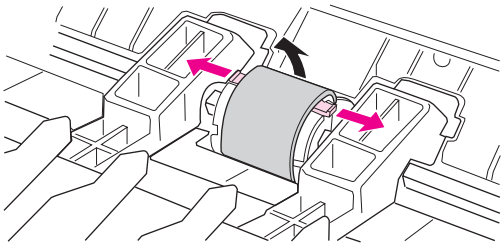

Figure 3-17. **Replacing the pickup roller (4 of 9)**

5. Gently pull the pickup roller up and out.

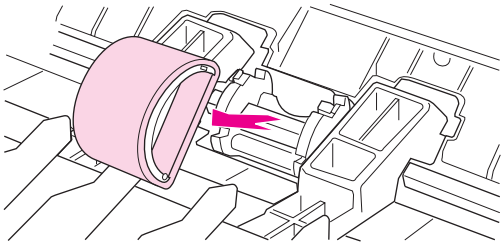

Figure 3-18. **Replacing the pickup roller (5 of 9)**

6. Position the new or cleaned part in the slot that held the pickup roller previously. See Cleaning the pickup roller for instructions.

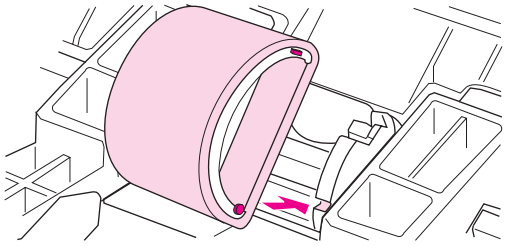

Figure 3-19. **Replacing the pickup roller (6 of 9)**

Note Circular and rectangular pegs on each side prevent you from incorrectly positioning the pickup roller.

7. Rotate the top of the new pickup roller away from you until both sides snap into place.

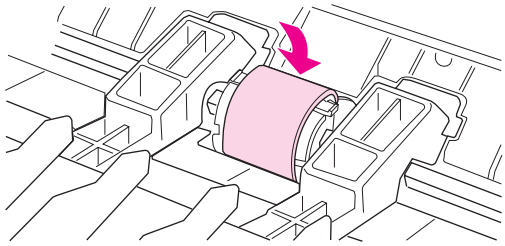

Figure 3-20. **Replacing the pickup roller (7 of 9)**

Note Touching the transfer roller can damage the product.

8. Reinstall the print cartridge, and close the print-cartridge door.

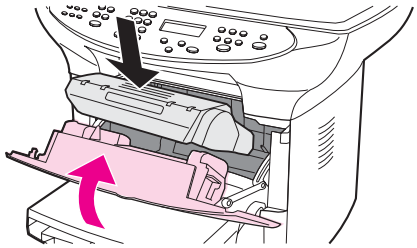

Figure 3-21. **Replacing the pickup roller (8 of 9)**

9. Plug the product in, and then use the power switch to turn on the product.

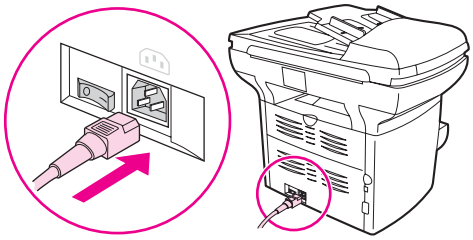

Figure 3-22. **Replacing the pickup roller (9 of 9)**

Replacing the printer separation pad

If the input tray feeds more than one sheet at a time, try cleaning the separation pad. See Cleaning the printer separation pad. If cleaning does not resolve the problem, replace the printer separation pad. Recurring feed problems indicate that the printer separation pad is worn.

Note Before you replace the separation pad, clean the pickup roller. See Cleaning the pickup roller for instructions.

To replace the printer separation pad

1. Use the power switch to turn off the product, and then unplug the power cord. Allow the product to cool.

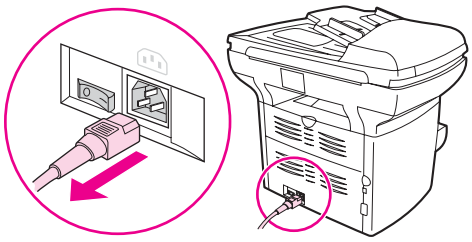

Figure 3-23. **Replacing the printer separation pad (1 of 9)**

2. Remove the input trays.

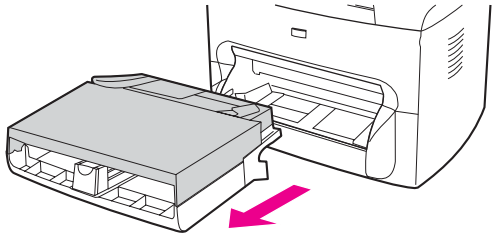

Figure 3-24. **Replacing the printer separation pad (2 of 9)**

3. Find the blue separation pad.

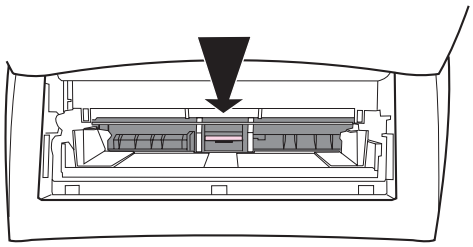

Figure 3-25. **Replacing the printer separation pad (3 of 9)**

4. To pry the separation pad up from the spring-loaded base, insert a flat-blade screwdriver in the slot under the separation pad and twist until the tabs are free.

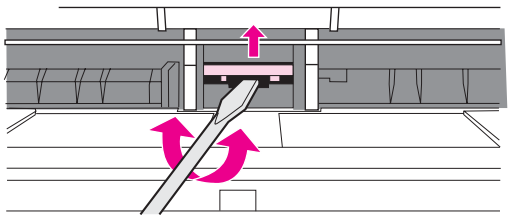

Figure 3-26. **Replacing the printer separation pad (4 of 9)**

CAUTION Touching the black sponge-roller can damage the product.

5. Reach in through the opening, push the spring-loaded base down (1) with one hand, and pull the separation pad up (2) with the other hand.

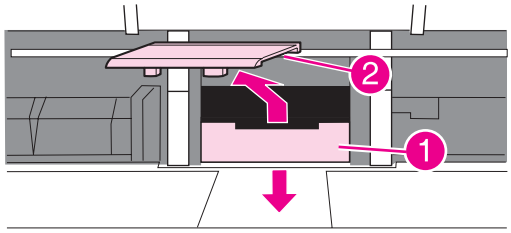

Figure 3-27. **Replacing the printer separation pad (5 of 9)**

6. With one hand, position the new separation pad in the slot that held the previous separation pad (1). With the other hand, reach through the input tray opening and push the spring-loaded base down (2).

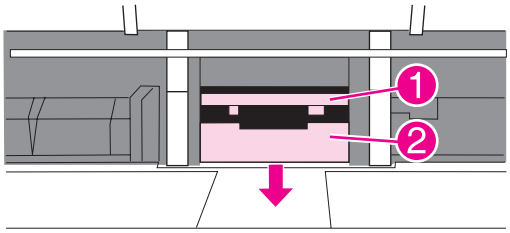

Figure 3-28. **Replacing the printer separation pad (6 of 9)**

Note The tab on the right is larger, which helps you position the separation pad correctly.

7. Snap both sides of the separation pad firmly into place.

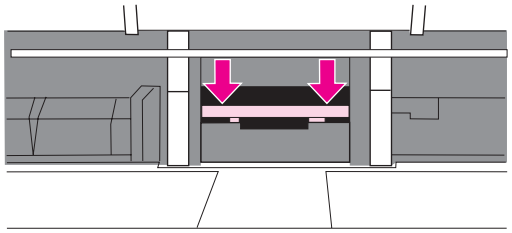

Figure 3-29. **Replacing the printer separation pad (7 of 9)**

CAUTION Make sure that the separation pad is straight and that no space exists between the separation pad and the spring-loaded base. If the separation pad is not straight or if space exists on one side, remove the separation pad, make sure that the larger tab is on the right, reinsert the separation pad, and snap both sides into place.

8. Reinsert the print cartridge, and close the print-cartridge door.

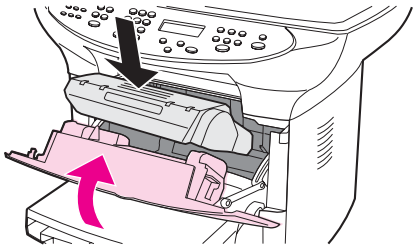

Figure 3-30. **Replacing the printer separation pad (8 of 9)**

9. Plug the product in, and use the power switch to turn on the product.

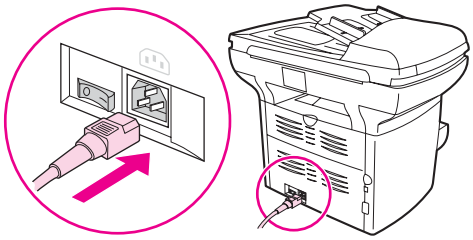

Figure 3-31. **Replacing the printer separation pad (9 of 9)**

Note If the pad is not properly positioned, the product might be noisy or the media might not feed at all.

Replacing an ADF

If the automatic document feeder (ADF) jams repeatedly, see Troubleshooting to try to resolve the problem. If necessary, follow these instructions to replace the ADF.

To install a replacement ADF

1. Pull up both hinge tabs, and remove the ADF by opening the ADF lid and gently lifting straight up.

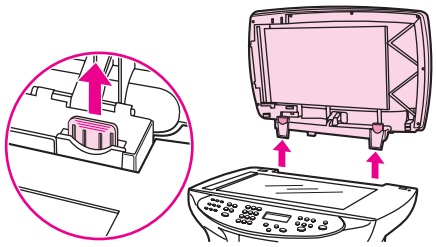

Figure 3-32. **Replacing the ADF (1 of 6)**

2. On the new ADF, unfold the hinges and pull up the tab on each hinge.

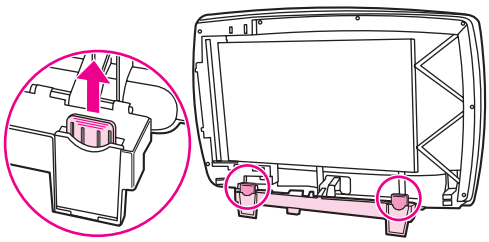

Figure 3-33. **Replacing the ADF (2 of 6)**

3. Install the new ADF by inserting the hinges straight down into the product.

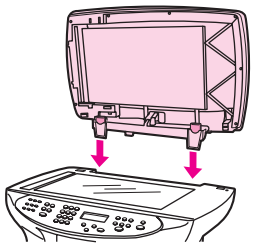

Figure 3-34. **Replacing the ADF (3 of 6)**

4. Push down on both tabs until they click.

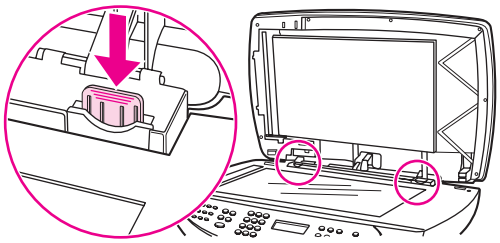

Figure 3-35. **Replacing the ADF (4 of 6)**

5. Gently close the ADF lid.

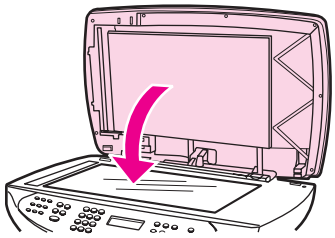

Figure 3-36. **Replacing the ADF (5 of 6)**

CAUTION To avoid damaging the product, do not allow the ADF lid to fall onto the flatbed scanner. Always close the ADF lid when the product is not in use.

6. Install the ADF input tray by aligning the two tabs on the input tray with the two grooves in the ADF lid and sliding the tray into the grooves until it snaps into place.

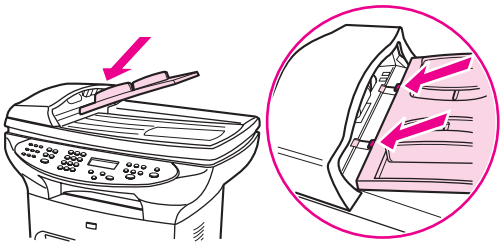

Figure 3-37. **Replacing the ADF (6 of 6)**

Replacing an ADF pickup-roller assembly

If the ADF has trouble picking paper, see Troubleshooting to try to resolve the problem. If necessary, replace the ADF pickup-roller assembly. To remove the existing assembly, follow these instructions.

To replace the ADF pickup-roller assembly

1. Use the power switch to turn off the product, and then unplug the power cord.

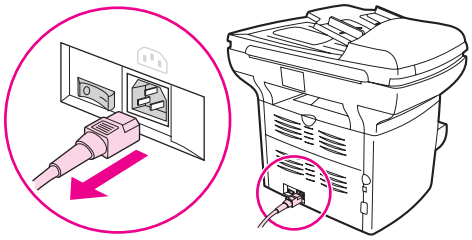

Figure 3-38. **Replacing the ADF pickup-roller assembly (1 of 9)**

2. Remove the input tray and open the ADF cover.

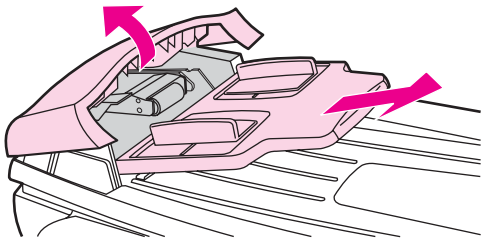

Figure 3-39. **Replacing the ADF pickup-roller assembly (2 of 9)**

3. Press the round, green button while lifting the green lever. Rotate the green lever until it stops in the open position. The old pickup roller assembly should remain on the black surface.

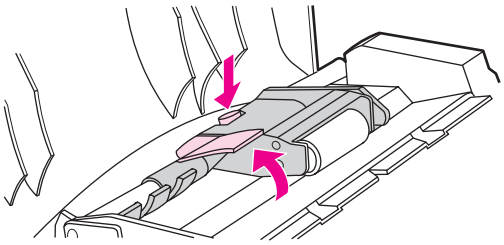

Figure 3-40. **Replacing the ADF pickup-roller assembly (3 of 9)**

4. Remove the old assembly and put the new one in exactly the same place. The largest roller goes in back, and the gear side is away from you.

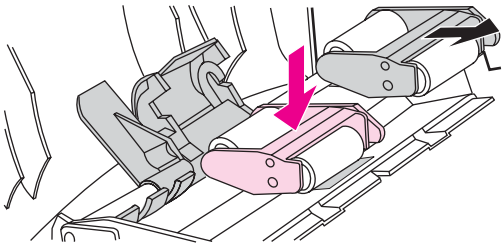

Figure 3-41. **Replacing the ADF pickup-roller assembly (4 of 9)**

5. Lower the green lever so that the flat green part fits between the rollers. Press down on the green lever until you hear it snap into place.

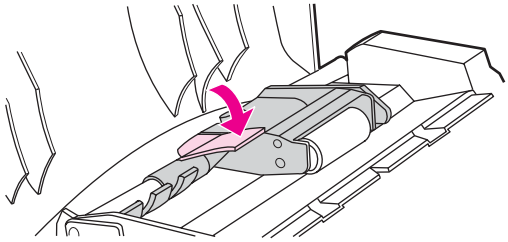

Figure 3-42. **Replacing the ADF pickup-roller assembly (5 of 9)**

6. To check for proper installation, lift the green lever until it remains in the open position. The new pickup roller assembly should be secured to the lever assembly and should not fall out.

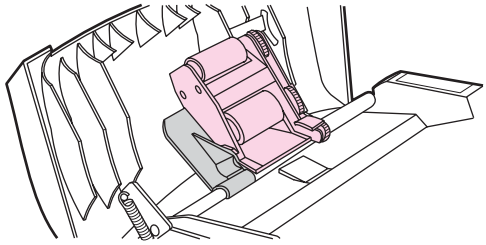

Figure 3-43. **Replacing the ADF pickup-roller assembly (6 of 9)**

7. Make sure that both sides of the assembly are secured by the green hooks.

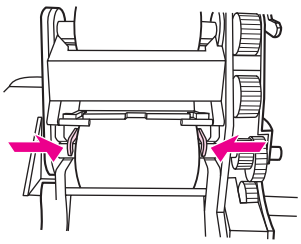

Figure 3-44. **Replacing the ADF pickup-roller assembly (7 of 9)**

8. Lower the green lever assembly and close the ADF lid. Reinstall the input tray.

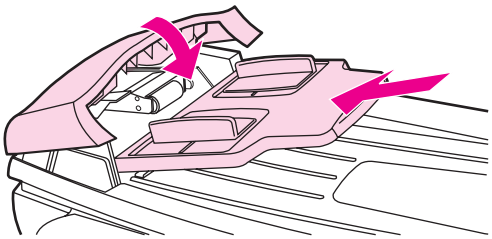

Figure 3-45. **Replacing the ADF pickup-roller assembly (8 of 9)**

Note If you are experiencing jams in the ADF, see Troubleshooting.

9. Plug the product in, and use the power switch to turn on the product.

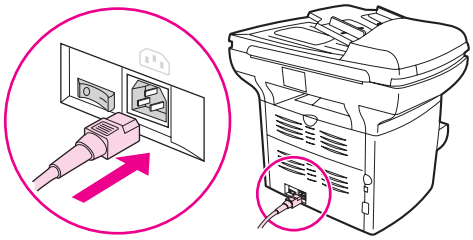

Figure 3-46. **Replacing the ADF pickup-roller assembly (9 of 9)**

Removing and replacing the product control-panel bezel

The control-panel bezel is available in several languages. To order a different bezel, see Ordering parts and supplies.

To replace the product control-panel bezel

1. Use the power switch to turn off the product, and then unplug the power cord.

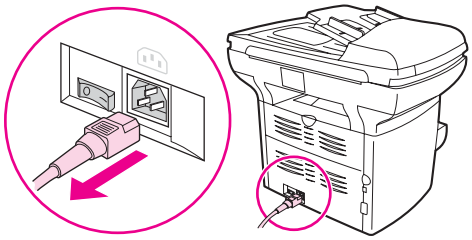

Figure 3-47. **Replacing the control-panel bezel (1 of 4)**

2. Remove the existing product control-panel bezel by lifting up on both sides of the cover edges until all of the snaps are disengaged. Set the old bezel aside.

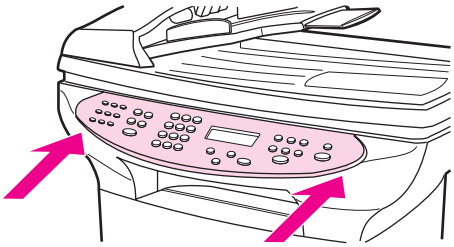

Figure 3-48. **Replacing the control-panel bezel (2 of 4)**

CAUTION Be careful not to touch any components or buttons inside the exposed product control-panel area.

3. Align the tab in the center of the bottom of the bezel with the slot on the product.

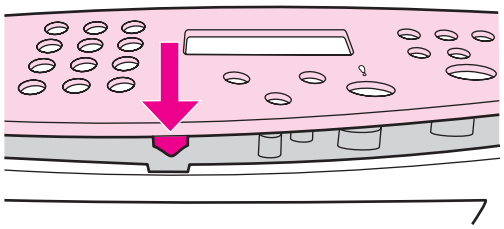

Figure 3-49. **Replacing the control-panel bezel (3 of 4)**

4. Press the bottom of the bezel onto the product, and then continue to press while pushing your hands up toward the top of the bezel until it snaps into place.

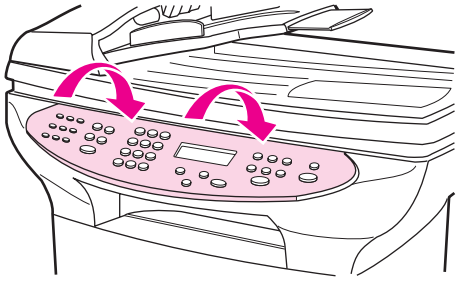

Figure 3-50. **Replacing the control-panel bezel (4 of 4)**

5. Plug the product in, and use the power switch to turn on the product.

4 Operational overview

This chapter contains information about the following topics.

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Basic functions

This chapter presents a functional overview of the HP LaserJet 3380 all-in-one. The following systems are discussed:

- printer functions and operation
  - engine controller unit (ECU) system/power system
  - laser/scanner system
  - image-formation system
  - paper-feed system (printer) and document-feed system (document scanner)
- formatter functions
- scanner and ADF functions and operation
- fax functions and operation

The full product consists of the following components:

- the scanner (flatbed and ADF)
- the printer
- the formatter
- the motor controller board
- the line interface unit (LIU)

Each of these systems brings its own characteristic functionality to the product: scanning, printing, and telecommunications, respectively. These systems interact to provide copying and faxing capability.

- The scanner and printer work together to make copies.
- The scanner and LIU work together to send faxes.
- The LIU and printer work together to receive faxes.

The ECU controls the operation sequences of the printer. The formatter controls the operation sequences of the LIU and document scanner.

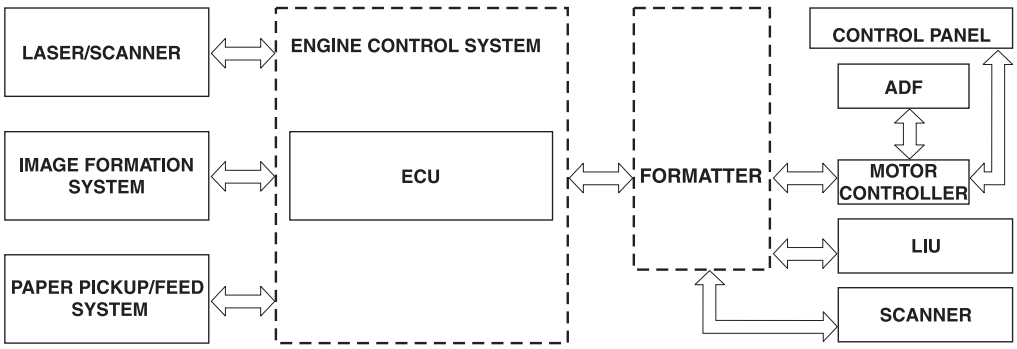


Figure 4-1. Product configuration

Basic sequence of operation (formatter-to-printer)

The microprocessor (CPU) on the ECU controls the operation sequence of the printer. The following events take place during normal printer operation:

Table 4-1. Basic sequence of operation (printer)

Period	Purpose	Remarks
WAIT. After the product is turned on until the end of the initial rotation of the main motor.	To clear the drum surface of potential and to clean the primary charging roller.	Detects whether or not the cartridge is installed.
STBY (Standby). From the end of the WAIT period or the LSTR period until the pickup command is sent from the formatter. Or, from the end of the LSTR period until the product is turned off.	To keep the product ready to print.	
INTR (Initial Rotation). After the pickup command has been sent from the formatter until the media reaches the pickup solenoid.	To stabilize the photosensitive drum sensitivity in preparation for printing. To clean the transfer charging roller.	
PRINT (Print). From the end of the INTR period until the primary voltage goes off.	To form images on the photosensitive drum based on the VIDEO signals (/VDO, VDO) that the formatter sends, and to transfer the toner image onto the media.	
LSTR (Last Rotation). After the primary voltage goes off until the main motor stops rotating.	To deliver the last page. To clean the primary charging roller.	When the formatter sends the pickup command, the printer enters the INTR period immediately after the end of the LSTR period.

The timing diagram in Figure 4-2. Printer timing diagram illustrates which components are affected during each of the periods in the basic sequence of operation for the printer.

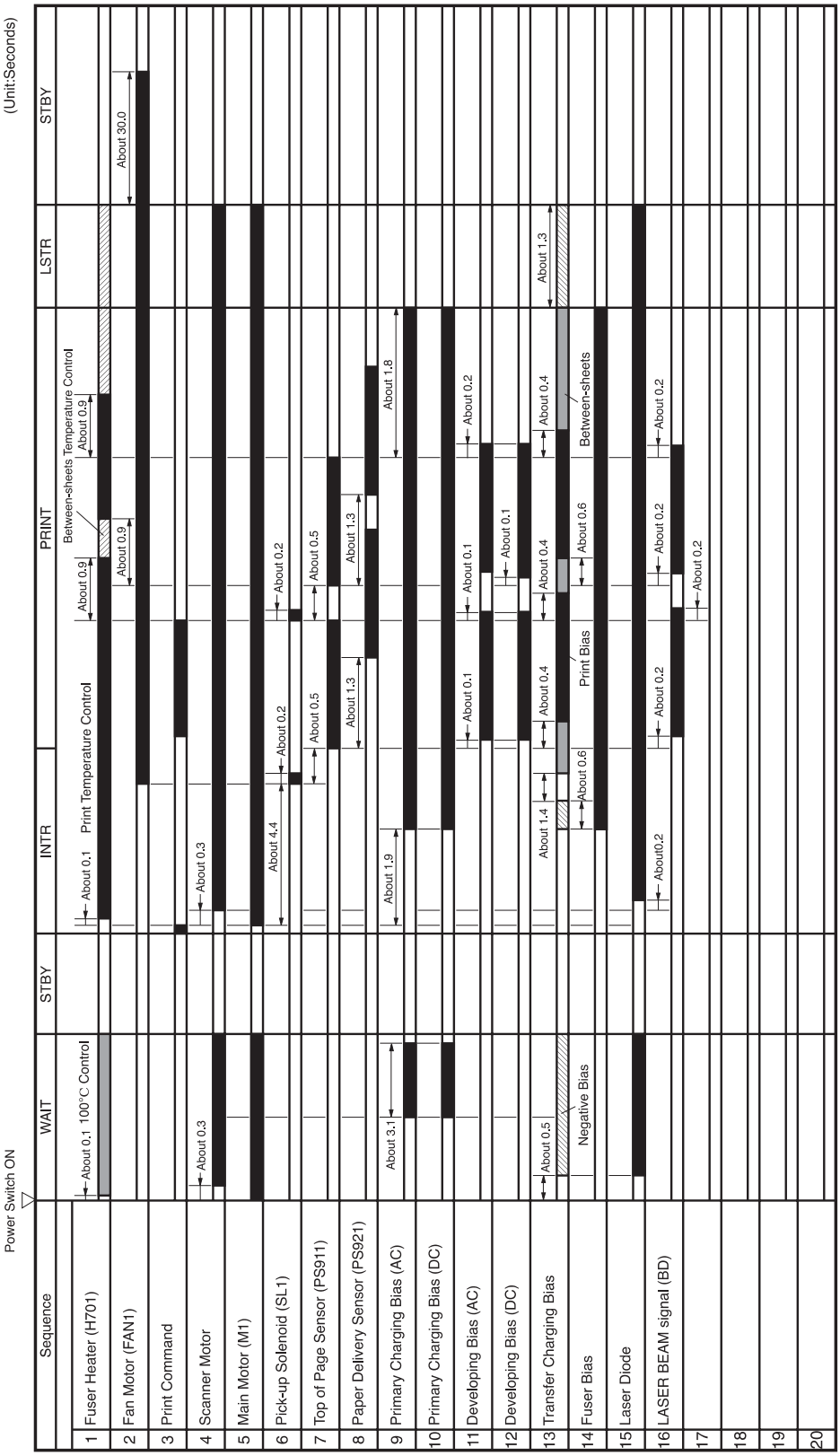


Figure 4-2. Printer timing diagram

Basic sequence of operation (scanner)

Table 4-2. Basic sequence of operation (scanner)

Period	Purpose	Remarks
WAIT. After the product is turned on until the message **Scanner Bulb warming up** appears on the control-panel display.	To perform the firmware initialization.	Tests RAM and establishes communication with the control panel.
AMBIENT LIGHT DETECT. From the end of the WAIT period until the scanner bulb is turned on.	To determine the level of ambient light in the environment.	The scanner makes a short move toward the ADF. If ambient light is too bright, the scanner moves away from the ADF until it is under the bezel (in shadow). At the end of this period, the scanner bulb is turned on.
INITIAL WARMUP. From the end of the AMBIENT LIGHT DETECT period until the scanner begins moving.	To warm up the scanner bulb.	The length of this period varies depending on product age and environmental conditions. However, this period will timeout (end) if the scanner bulb does not warm up within 2 minutes, and an error message appears on the control panel.
HOME FIND. From the end of INITIAL WARMUP until the **Ready** message appears on the control-panel display.	To position the scanner at the home position under the bezel at the document-origin end of the flatbed, and to perform the final lamp warmup checks.	The scanner performs several back-and-forth movements during this period. The scanner finds its home position by scanning, not by using any sort of sensor.
READY. From the end of HOME FIND until the STANDBY period.	To keep the product ready to print, scan, copy, or fax with no scanner warmup delay.	The scanner remains in the READY state for 10 minutes following HOME FIND or following the last scanner usage.
STANDBY. Occurs 10 minutes after the start of the READY period, or 10 minutes after the last scanner usage (copy/scan/fax).	To reduce power consumption and increase scanner bulb life.	The scanner performs a HOME FIND before going into standby.
POWERSAVE. Occurs a minimum of 2 hours and a maximum of 12 hours (user configurable) after the start of the READY period, or after the last scanner usage.	To reduce power consumption and increase scanner-bulb life beyond what can be achieved with STANDBY.	A workday modeling algorithm governs the actual powersave behavior.

Table 4-2. Basic sequence of operation (scanner) (continued)

Period	Purpose	Remarks
CALIBRATION. From the time the copy/scan/fax button is pressed until the STAGE period.	To compensate for variability in the scanning system.	Calibration is performed by moving the scanner back-and-forth several times near the home position. If the previous period was STANDBY or POWERSAVE, a short delay occurs. The message **Scanner Bulb warming up** appears on the control-panel display during this delay.
STAGE. From the end of CALIBRATION until the SCAN period.	For an ADF scan: to position the scanner under the ADF scanning window, and then to position the original document's leading edge at the scanning position. For a flatbed scan: to position the scanner at the document-origin position before scanning the original.	For an ADF scan, the page feeds partway into the scanner, then stops briefly. For a flatbed scan, the STAGE period is built-in to the SCAN period, so STAGE is not visible externally.
SCAN. For an ADF scan: From the end of the brief pause that follows the STAGE period until the EJECT or following-page STAGE period. For a flatbed scan: From the end of CALIBRATION until the REHOME period.	To scan one page of the original document.	For an ADF scan: another STAGE period follows this period if another page of the original document is present in the ADF. Otherwise, the EJECT period follows. For a flatbed scan: The REHOME period follows this period.
EJECT. (ADF only) From the end of the SCAN period until the original document page is completely ejected from the scanner.	To clear the last page of the original document from the scanner.	
REHOME. From the end of the EJECT period (ADF) or the SCAN period (flatbed) until the **Ready** message appears on the control-panel display.	To return the scanner to the home position.	A short back-and-forth sequence occurs as the scanner reaches the home position before the **Ready** message appears on the control-panel display.

Formatter system

The formatter coordinates the major systems. It is responsible for the following tasks or actions:

- controlling the motor controller board
- formatting and controlling copies
- receiving and processing print data from the printer interface
- monitoring the control panel and relaying printer-status information
- developing and coordinating data placement and timing with the print engine
- communicating with the host computer through the bidirectional interface
- communicating fax data to and from the LIU

The formatter receives print data from the bidirectional enhanced capabilities port (ECP) mode interface or universal serial bus (USB) interface and converts it into a dot image. The ECU synchronizes the image-formation system with the paper-feed system and signals the formatter to send the print-image data. The formatter sends the print-image data (dots) in the form of a video signal, and the printing process begins.

Central processing unit

The formatter incorporates an embedded 32-bit Coldfire V4e processor operating at 90 MHz.

Line interface unit (LIU)

The LIU provides the required safety isolation, signal coupling, and impedance matching between the telephone line and the modem chipset that is located on the formatter.

Motor controller PCA

The motor controller PCA contains motor-driver circuitry for the ADF motor and the scan-module position motor. The motor controller PCA also provides electrical interface from the formatter to the control-panel PCA and to the speaker.

Flash memory

The formatter system includes firmware code that controls the product. The code is stored in flash memory, which allows the firmware code to be recovered or updated. The firmware update and recovery process is described in Troubleshooting.

Standard boot process

When the product is unplugged or the power is off, the firmware code is stored on the formatter in two blocks. The first block of code is an executable boot block (about 64 K of code). The second block of code is a compressed version of the product control code.

When the product is turned on, the boot block decompresses the product control code and stores it in RAM. Then the product performs a full startup with the control code running from RAM.

Product startup messages

The LED display contains different messages depending upon the progress of the boot process:

Table 4-3. Product startup messages

Message	Cause	Solution
-blank-	(Blank display for many seconds after power-on.) Boot-block failure.	The flash memory requires a DIMM recovery of the firmware code (see chapter 6).
Contact Service	Control-code failure.	The flash memory requires a DIMM recovery of the firmware code (see chapter 6).
Hewlett-Packard **<<<** (Moving-cursor HP display)	The product is starting up.	Wait for the **Ready** message.
Ready.....	Product startup is complete and the product is ready for use.	Begin using the product.

RAM

The product contains two types of random-access memory (RAM):

- One bank of nonvolatile RAM (NVRAM) stores parameters.
- Dynamic random access memory (DRAM) provides temporary storage of the product program code along with copy, scan, and print data.

Parallel interface or universal serial bus (USB) interface

The formatter receives incoming data through its bidirectional ECP or USB interface. These interfaces provide high-speed, two-way communication between the product and the host, allowing you to change product settings and monitor product status from the host computer.

Control panel

The control panel consists of the following features:

- six groups of buttons to control fax, copy, scan, and configuration functionality
- a 2-by-16 LCD display that shows status, menus, and messages
- two front-panel status lights (one next to the CANCEL button and one next to the FAX/SEND button)

EconoMode (Draft mode)

When you select EconoMode in the printer driver, the product uses less toner, which extends the life of the print cartridge. Using EconoMode produces a lighter image because less toner is on the page.

MEt

HP Memory Enhancement technology (MEt) effectively doubles the standard memory through a variety of font- and data-compression methods.

Enhanced I/O

The enhanced I/O (EIO) feature allows product memory to be used for storing data received from the host computer. When EIO is enabled, you can send more data to the product in shorter amounts of time, so that you can return to the software program more quickly. The EIO feature has the following options:

- **Auto** —the product uses EIO memory allocation to increase the speed of data transfer from the host computer to the product, if necessary. The default setting is Auto.
- **Off** —the minimum amount of product memory is used to store data that is sent from the host computer.
- **Page Protect**—the formatter creates the entire page image in page-buffer memory before physically moving the media through the printer. This process ensures that the entire page will be printed.

Page complexity (ruling lines, complex graphics, or dense text) can exceed the printer's ability to create the page image fast enough to keep pace with the image-formation process. If Page Protect is disabled and a page is too complex, the page might print in sections (for example, the top half on one page and the bottom half on the next page). Some print-data loss is likely in these instances, and an error message will appear on the control-panel display.

PJL overview

Printer job language (PJL) is an integral part of configuration, in addition to the standard printer command language (PCL). With standard ECP cabling, the product can use PJL to perform the following functions:

- **Two-way communication** with the host computer through a bidirectional parallel connection. The product can communicate information to the host (such as the control-panel status).
- **Isolation of print environment settings** from one print job to the next. For example, if a print job is sent to the product in landscape mode, the subsequent print jobs print in landscape only if they are formatted for landscape printing.

Scanner and ADF functions and operation

The following sections describe how the document scanner and the automatic document feeder (ADF) function.

Scanner functions

The scanner uses a light source, a color-separation method, and a charge-coupled device array (CCD) to collect optical information about the document and transform that into an image file. The scanner consists of these elements:

- a lamp (cold-cathode fluorescent bulb)
- five mirrors and a lens
- a CCD

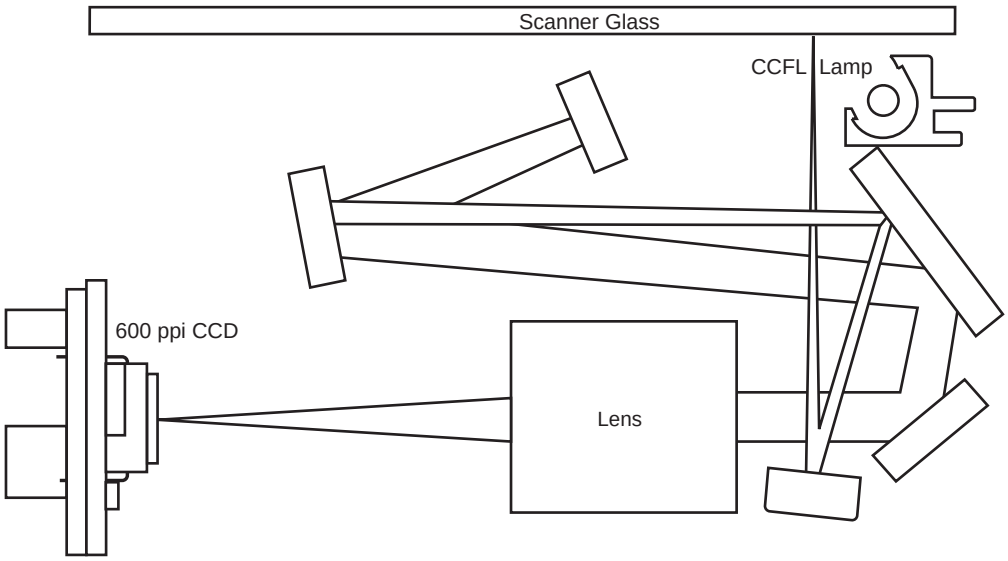


Figure 4-3. **Optical diagram of scanner**

The scanner lamp illuminates a small strip of the document (called the *raster line*). The mirrors direct the light through the lens to the CCD. The CCD senses and records the light, creating an analog representation of the raster line. If the ADF is being used, the document then advances in the ADF to the next raster line. If the flatbed is being used, the scanner module advances to the next raster line. This advancing and collection process continues to the end of the sheet.

The image data is collected in the motor controller board, where it is processed and sent to the formatter. The formatter then handles the image data, outputting it as a copy, sending it through the LIU as a fax, or directing it to the computer as scanner output.

The image data collected for scans is 600 pixels per inch (ppi). The image data collected for copies is 300 ppi. Each pixel has 8 bits for each of the three colors (256 grayscale levels for each color) or a total of 24 bits per pixel (24-bit color).

Scanner operation

At startup and periodically at other times, the scanner assembly moves systematically to locate its home position. It then calibrates to a white strip located under the glass at the right end of the scan tub.

If the product detects a document in the ADF when a copy or scan is initiated (from the software or the control panel), the scan module moves to the left side of the scan tub and stops. The image is acquired as the paper is fed through the ADF past the scanner module.

If no document is detected in the ADF, the scan module acquires the image from the flatbed glass while slowly moving within the scan tub.

ADF operation

Standby (paper-loading) mode: In standby mode, the pickup roller is up and the stack-stop is down, preventing the user from inserting the original document too far. When a document is inserted correctly, the paper-present sensor detects its presence.

The standard operation of the ADF consists of the pick, feed, and lift steps.

Pick: When it receives a copy or scan command, the ADF motor engages the gear train to lower the pickup-roller assembly and raise the stack-stop. The first roller, called the pre-pick roller, moves the top few sheets forward into the ADF. The next roller is the pickup roller. This roller contacts the ADF separation pad, which separates multiple pages into single sheets.

Feed: The single sheet continues through the path. Along the way, the form sensor, which is a set distance from the ADF glass, detects the sheet. This alerts the scanner to start when the page reaches the glass. The scanner acquires the image, one raster line at a time, until it detects the end of the page. The page is then ejected. The pick and feed steps are repeated as long as paper is detected in the ADF input tray.

Lift: When no more paper is detected in the ADF input tray and the form sensor detects the trailing edge of the last page, the last sheet is ejected and the motor turns in a sequence that lifts the pick roller assembly to standby (paper-loading) mode again.

The ADF will not function when the ADF lid is open. The paper path is incomplete if the ADF lid is lifted from the glass.

ADF paper path and ADF sensors

The following diagram shows the ADF paper path.

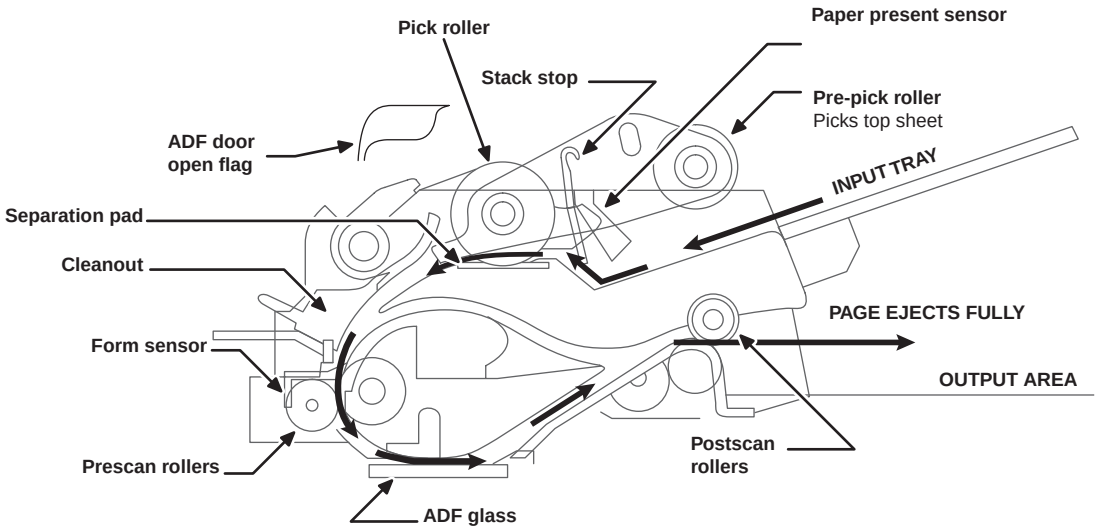


Figure 4-4. **Document scanner path**

The paper-present sensor determines if paper is in the ADF. The form sensor detects the top and bottom edges of the document. One other sensor detects an open ADF door.

ADF jam detection

The ADF has two sensors that detect paper. The paper-present sensor detects the presence of media in the ADF input tray. The form sensor detects media moving through the ADF. If a jam is detected, the ADF immediately stops the paper feeding and a jam message appears on the control-panel display.

A jam can be detected under any of the following conditions:

- **Document-feeder jam**—When documents are detected in the ADF input tray, and a command to copy, scan or fax is received, the scan module travels to the left side of the scan assembly and stops beneath the ADF scanner glass. The ADF then attempts three times, or for about ten seconds, to advance the paper to the form sensor. If the paper does not advance, the scan module travels back to the home position on the right side of the scanner assembly. The message **Document feeder mispick. Reload.** appears on the control-panel display.
- **Long-document jam**—If the paper has advanced to trigger the form sensor, but the trailing edge is not detected within the time allowed for a 381-mm (15-inch) document (the maximum allowable page length for the ADF), the scanner returns to the home position at the right side of the scanner assembly. The message **Doc feeder jam. Clear, Reload.** appears on the control-panel display.
- **Stall jam**—When a page that is less than 381 mm (15 inches) long has advanced to the form sensor but has not left it within the expected time, the paper has probably stalled or jammed. The scanner returns to the home position at the right side of the scanner assembly. The message **Doc feeder jam. Clear, Reload.** appears on the control-panel display.
- **Other**—If the paper stops in the ADF and the scan module remains under the ADF scanner glass, an internal firmware error has probably occurred. This is usually remedied by cycling the power.

Printer functions and operation

Printer functions are divided into four groups:

- engine control
- image formation
- laser/scanner
- pickup and feed

The following is a block diagram of the printer and its relationship to the ADF/scanner and LIU.

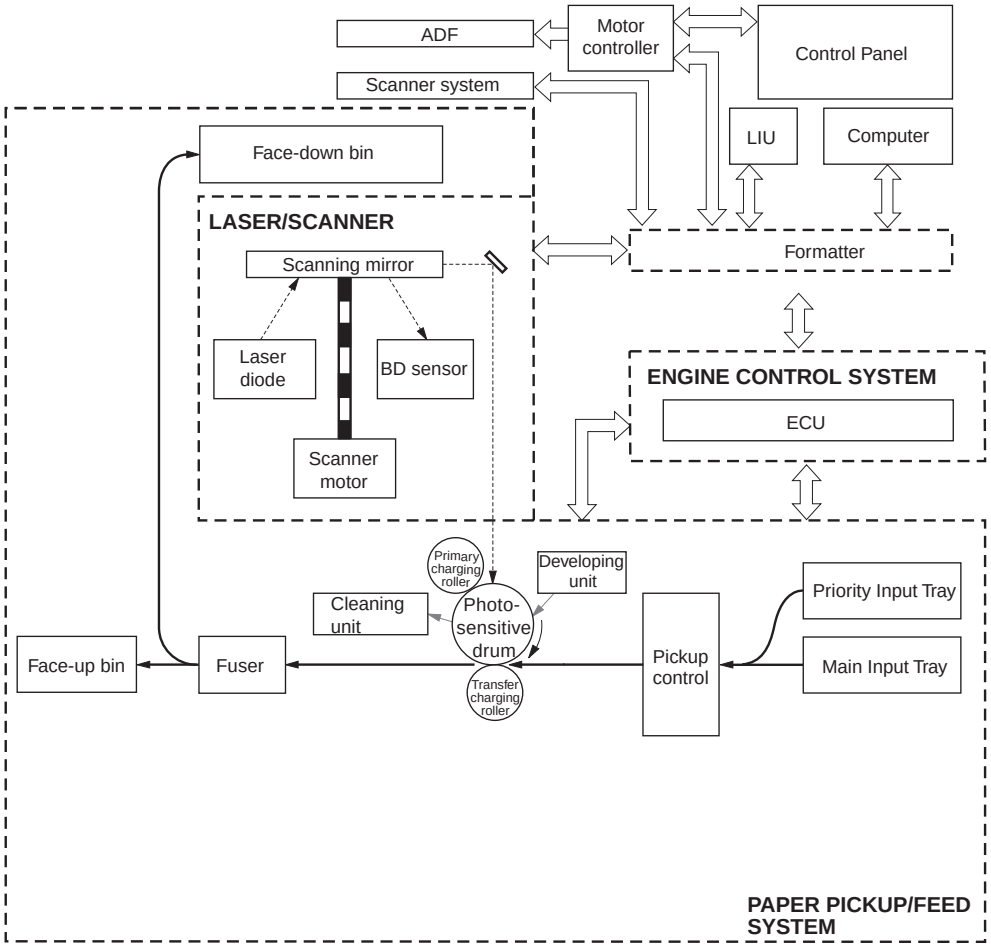


Figure 4-5. **Printer unit functional block diagram**

Engine control unit (power system)

The engine control unit (ECU) coordinates all print engine activities, drives the laser, and coordinates print data from the formatter with the image-formation process. The ECU also includes the power supply and distribution circuitry.

Note

In several other HP LaserJet products, the ECU is also known as the controller PCA or the dc controller PCA.

The ECU controls the following systems and functions:

- **Power system**
  - ac power distribution
  - dc power distribution
  - high-voltage power distribution
  - low-voltage power distribution
- **Paper motion and monitoring**
- **Motors**
  - main motor (M1)
  - fan motor (FN1)
- **Printer laser/scanner**
- **Image formation**
- **Fuser**
  - temperature control
  - failure detection

Figure 4-6. ECU loads shows the various ECU loads.

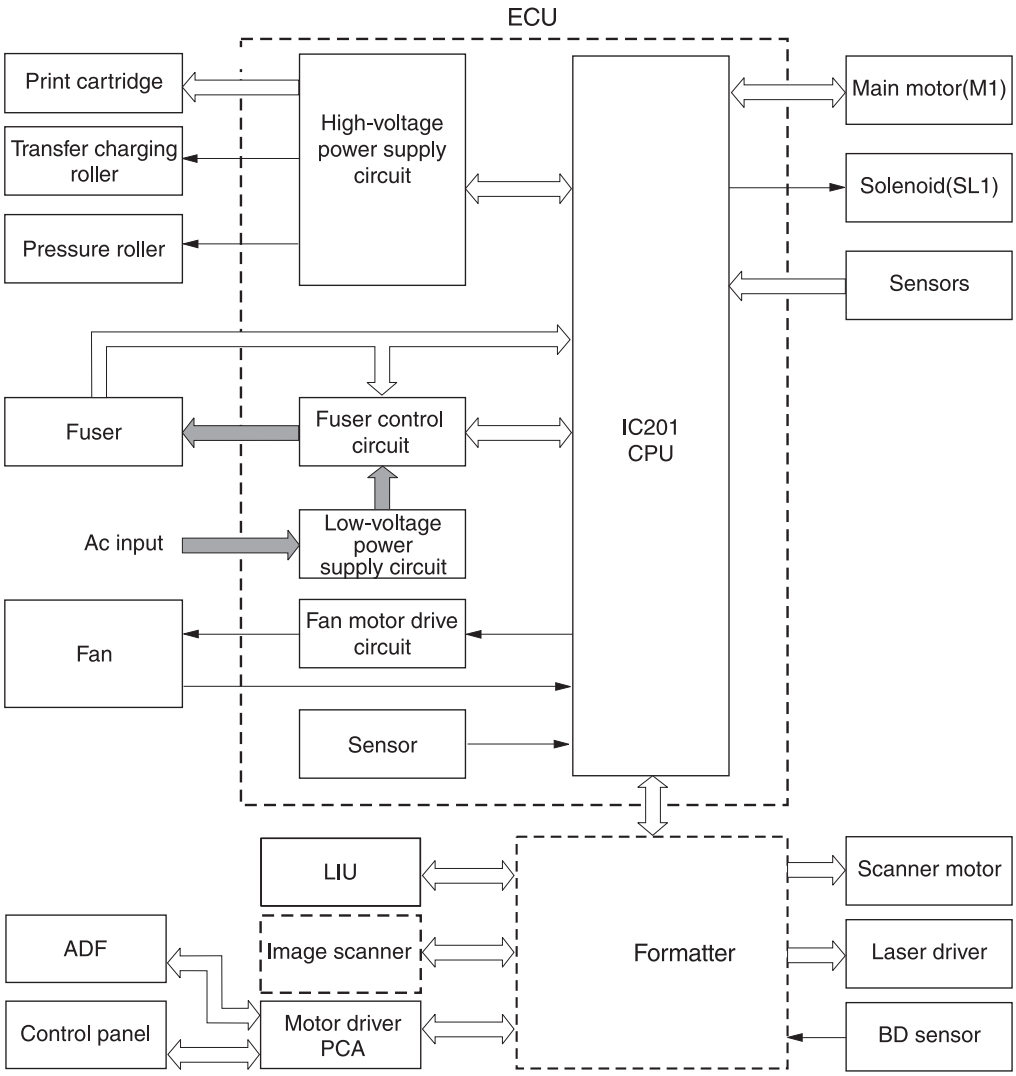


Figure 4-6. **ECU loads**

Power system within the ECU

The ac, dc, and high-voltage power supply circuits are all contained within the ECU.

Ac power distribution

The ac power circuitry supplies ac voltage whenever the power cord is connected to the ac power source. Ac voltage is distributed to the dc power supply circuitry and to the ac driver circuitry, which controls ac voltage to the fuser assembly heating element.

Dc power distribution

The dc power distribution circuitry, located on the ECU, distributes +3.3 Vdc, +5 Vdc, +24 Vdc, and +32 Vdc as follows:

• +3.3 Vdc:	Formatter Laser/beam-detect circuitry ECU Photosensors LIU ADF sensors Control Panel
• +5 Vdc:	Formatter ECU Laser/beam-detect circuitry LIU
• +24 Vdc:	Printer paper-path motor Exhaust fan Laser/scanner motor Solenoid Formatter (routing only) High-voltage power supply Fuser safety circuit Scanner (CCD)
• +32 Vdc:	ADF motor Scanner motor Formatter (routing only)

High-voltage power distribution

The high-voltage power supply applies an overlap of dc and ac voltage to the primary-charging roller and the developing roller. This circuit also applies a positive or negative dc voltage to the transfer roller according to the instructions from the engine control unit.

This circuit also controls the image density by changing the primary ac voltage and the developing ac bias according to the print-density setting. Figure 4-7. High-voltage power supply circuit shows the high-voltage power supply circuit.

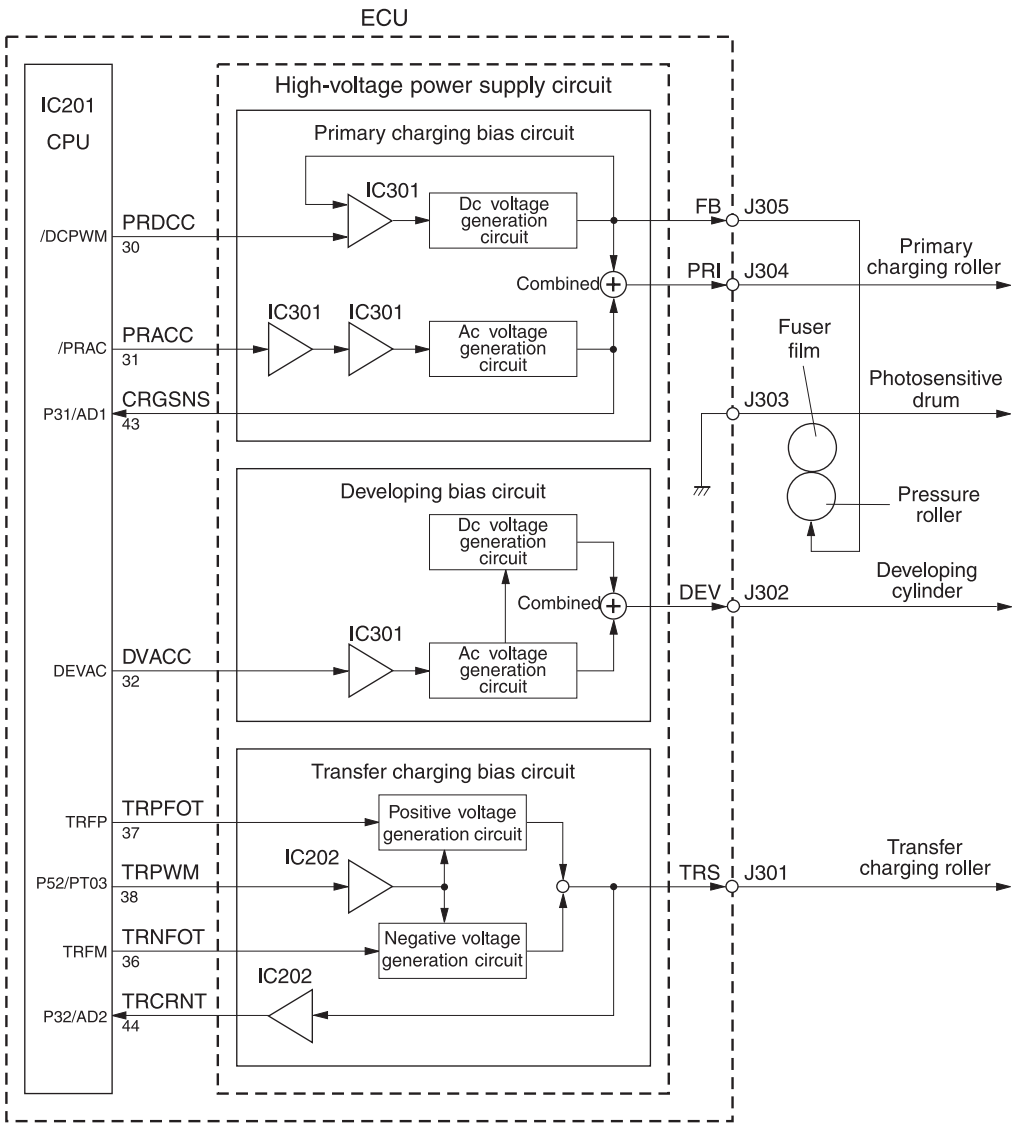


Figure 4-7. **High-voltage power supply circuit**

Low-voltage power distribution

The low-voltage power supply circuit converts ac power into +24 Vdc, +5 Vdc, and +3.3 Vdc as required by the printer. The +24 Vdc is divided into +24 V, which is supplied constantly from the low-voltage power supply circuit, and +24 U, which is supplied to the high-voltage power supply circuit and which acts as the door-open detection. When the top cover is open, the door-open switch (SW301) cuts the +24 U to the high-voltage power supply circuit.

The circuit contains a fuse for overvoltage protection. FU101 breaks and cuts power if overcurrent flows through the power cord. FU102 (on 110-127 V models) breaks at a lower amperage, as required for lower-voltage units.

In addition, the +24 Vdc and +3.3 Vdc power circuitry contains an overcurrent protection circuit that automatically shuts off dc voltage output to prevent power-supply failures if current flow is excessive or voltage generation is abnormal. The circuit automatically resets itself when the printer is turned off.

Paper-motion monitoring and control

The ECU controls paper motion in the printer by continuously monitoring the various paper sensors and coordinating the timing with the other print processes.

For a detailed explanation of paper movement and the interaction of the photosensors and solenoid with the paper-motion process, see Printer paper-feed system.

Motors

The ECU controls the motors. The main motor provides all of the paper movement in the printer. The fan motor rotates the fan to cool the printer.

Printer laser/scanner drive

The laser/scanner system is controlled by the ECU, which sends laser control signals CNT0, CNT1, and CNT2, and by the formatter, which sends video signals /VDO1, VDO1, /VDO2, and VDO2.

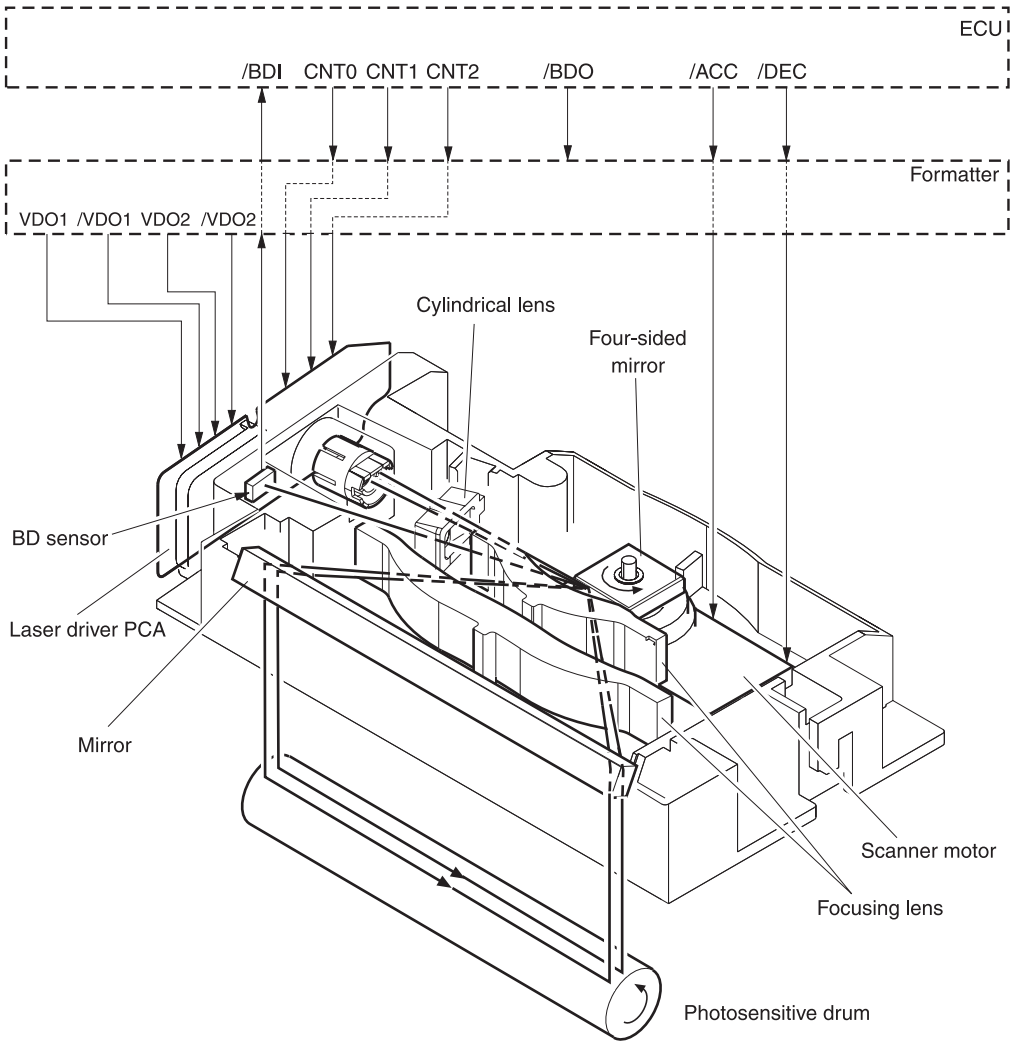


Figure 4-8. **Overview of laser/scanner operation**

Image-formation system

Laser printing requires the interaction of several different technologies, including electronics, optics, and electrophotographics, to provide a printed page. Each process functions independently and must be coordinated with the other printer processes. Image formation consists of seven processes:

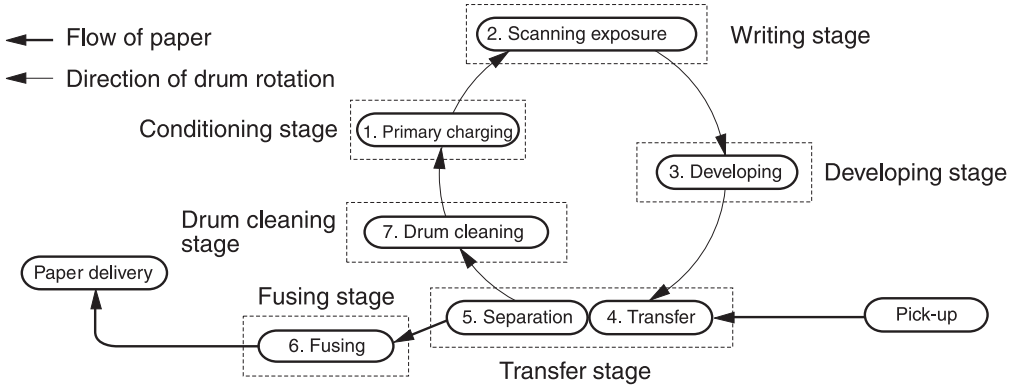


Figure 4-9. **Image-formation block diagram**

The seven image-formation processes

1. **Conditioning stage (primary charging)**—This process applies a uniform negative charge to the surface of the drum with the primary-charging roller, which is located in the print cartridge. The primary-charging roller is coated with conductive rubber. An ac bias is applied to the roller to erase any residual charges from any previous image. In addition, the primary charging roller applies a negative dc bias to create a uniform negative potential on the drum surface. The print density setting modifies the dc voltage.
2. **Writing stage (scanning exposure)**—During this process, a modulated laser diode projects the beam onto a rotating scanning mirror. As the mirror rotates, the beam reflects off the mirror, first through a set of focusing lenses, then off a mirror, and finally through a slot in the top of the print cartridge, and onto the photosensitive drum. The beam sweeps the drum from left to right, discharging the negative potential wherever the beam strikes the surface. This creates a latent electrostatic image, which later is developed into a visible image. Because the beam sweeps the entire length of the drum while the drum rotates, the entire surface area of the drum can be covered. At the end of each sweep, the beam strikes the beam-detect lens, generating the beam-detect signal (BD signal). The BD signal is sent to the ECU, where it is converted to an electrical signal that synchronizes the output of the next scan line of data.
3. **Developing stage**—During this process, the latent electrostatic image is present on the drum. The toner particles obtain a negative surface charge by rubbing against the developing cylinder, which is connected to a negative dc supply. The negatively charged toner is attracted to the discharged (exposed, grounded) areas of the drum, and it is repelled from the negatively charged (unexposed) areas.
4. **Transfer stage**—During this process, the toner image on the drum surface is transferred to the media. The transfer roller applies a positive charge to the back of the media, which attracts the negatively charged toner on the drum surface to the media. After separation, the drum is cleaned and conditioned for the next image.
5. **Separation stage**—During this process, the media separates from the drum. To stabilize the feed system and prevent toner dropouts on the printed image at low temperature and humidity, the static eliminator reduces the charge on the back of the media.

6. **Fusing stage**—During this process, the heat and pressure fuse the toner into the media to produce a permanent image. The media passes between a heated fusing element and a soft pressure roller, which melt the toner and press it into the media.
7. **Drum-cleaning stage**—During this process, the cleaning blade is in contact with the surface of the drum at all times. As the drum rotates during printing, the cleaning blade wipes excess toner off the drum and stores it in the waste toner receptacle.

Print cartridge

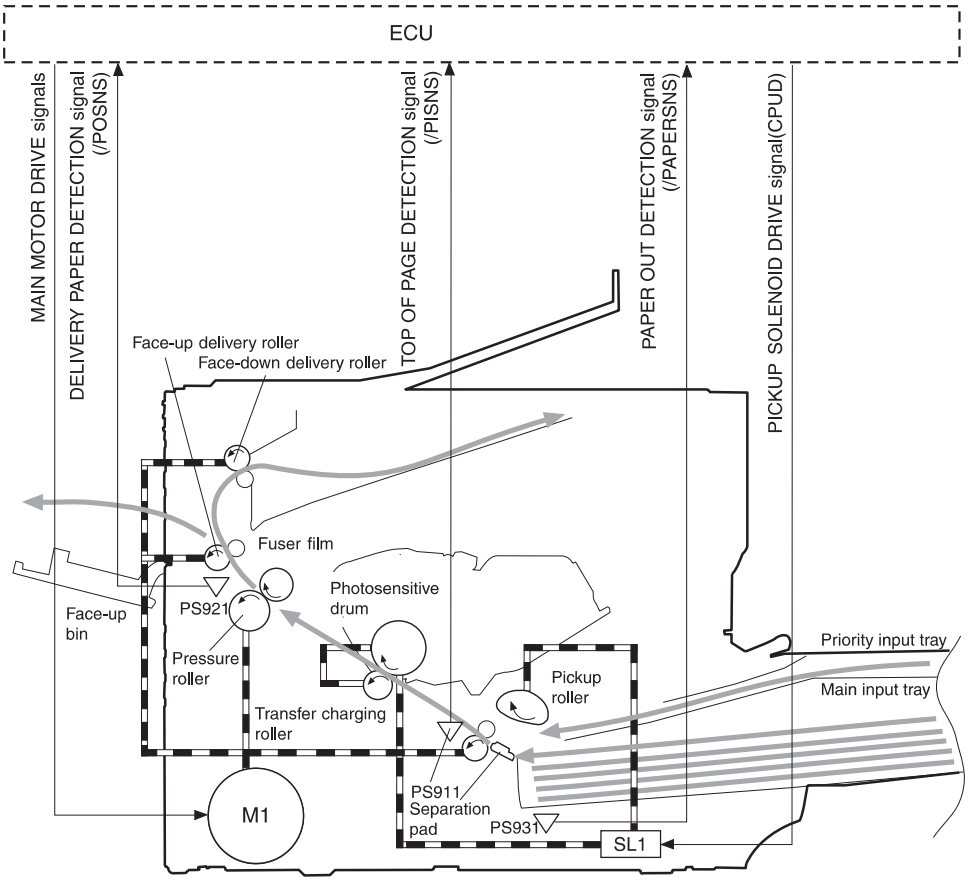
As the focal point of the image-formation system, the print cartridge contains toner and houses the cleaning, conditioning, and developing stages of the process. The print cartridge contains the photosensitive drum, primary charging roller, developing station, toner cavity, and cleaning station. By including these components (which wear, degrade, or are consumed) in the replaceable print cartridge, the need for many service calls is eliminated. The special photosensitive properties of the drum form an image on the drum surface and then transfer the image to media.

CAUTION The print cartridge does not include a light-blocking shutter. Do not expose the drum to light, which can permanently damage the drum. Protect the print cartridge whenever you remove it.

Printer paper-feed system

The main input tray and the priority input tray merge into one main input area. Media placed in any of these areas activates the paper detection sensor (PS931), which informs the ECU that media is present. The following steps occur when the product receives a print job:

Step 1	The ECU activates the laser/scanner assembly and the motor. Paper motion begins when the ECU energizes the solenoid (SL1).
Step 2	The paper-pickup roller rotates once. The paper-lift plate pushes the media against the pickup roller.
Step 3	The pickup roller moves the top sheet and advances it to the feed assembly drive rollers. To ensure that only one sheet is fed, a main separation pad and two subpads hold the remainder of the stack in place.
Step 4	The feed-assembly drive rollers advance the media to the paper-top sensor (PS911). This sensor informs the ECU of the exact location of the leading edge of media, so that the image that is being written on the photosensitive drum can be precisely positioned on the page.
Step 5	The feed-assembly drive rollers then advance the media to the transfer area, where the toner image on the photosensitive drum is transferred to the media.
Step 6	After the image is transferred, the media enters the fuser assembly, where heat from the fuser and pressure from the pressure roller permanently bond the toner image to media. The paper-delivery sensor (PS921) determines that the media has successfully moved out of the fusing area.
Step 7	The fuser assembly exit rollers deliver media to either the paper output bin or the straight-through output path, according to the position of the straight-through output path door.



PS911: Paper-top sensor
PS921: Paper-delivery sensor
PS931: Paper-detection sensor
M1: Main motor
SL1: Pickup solenoid

Figure 4-10. **Printer paper path**

Jam detection

The paper-detection sensor (PS931) detects the presence of media in either the priority input tray or the main input tray. The paper-top sensor (PS911) and the paper-delivery sensor (PS921) detect media moving through the printer. If a jam is detected, the ECU immediately stops the printing process and a jam message appears on the control-panel display.

A jam can be detected under any of the following conditions:

- **Pickup delay jam**—Media does not reach the paper-top sensor (PS911) after the pickup solenoid (SL1) has been turned on twice (the original pickup plus a retry) within 2 seconds.
- **Pickup stationary jam**—The paper-top sensor (PS911) does not detect the trailing edge of media within 1 second of detecting the leading edge.
- **Delivery-delay jam**—The paper-delivery sensor (PS921) does not detect the leading edge of media within 1.5 seconds after the paper-top sensor (PS911) detects the leading edge.

- **Wrapping jam**—The paper-delivery sensor (PS921) does not detect the trailing edge of the media within 0.1 second after the paper-top sensor (PS911) detects the leading edge and 1 second has passed since the paper-delivery sensor (PS921) detected the leading edge.
- **Delivery-stationary jam**—The paper-delivery sensor (PS921) does not detect the leading edge of media within 1.6 seconds after the paper-top sensor (PS911) detects the trailing edge.
- **Residual paper jam**—The paper-top sensor (PS911) or the paper-delivery sensor (PS921) detect media during the initial rotation period.
- **Door open jam**—The paper-top sensor (PS911) or the paper-delivery sensor (PS921) detect media while the print-cartridge door is open.

Solenoid, photosensors, and switches

The following figure shows the locations of the solenoid, photosensors, and switches.

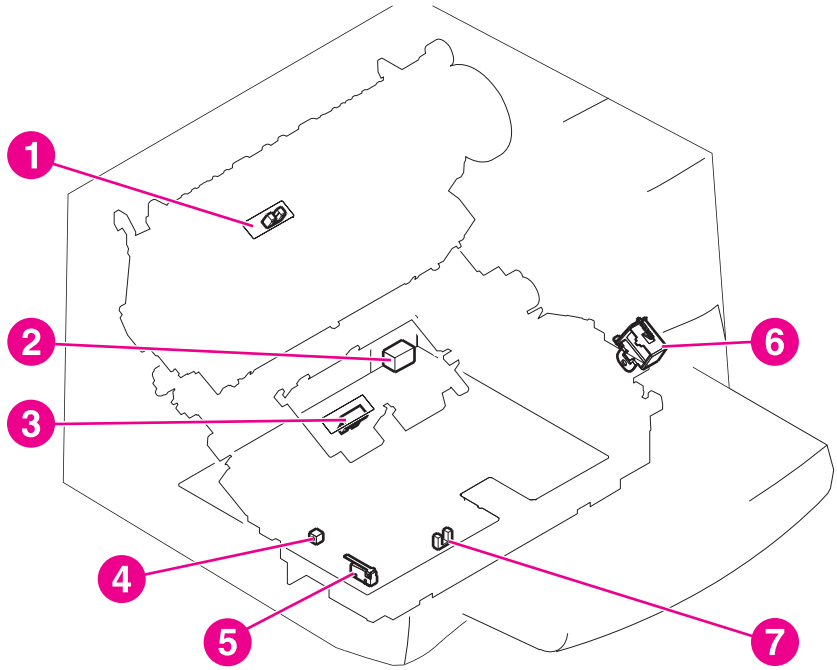


Figure 4-11. Solenoid, photosensors, and switches

1 Paper-delivery sensor (PS921) senses when paper has successfully moved out of the fusing area.
2 Power switch.
3 Paper-top sensor (PS911) detects the leading and trailing edges of the paper. It synchronizes the photosensitive drum and the top of the paper.
4 Engine-test switch (SW201), see Engine test for an explanation of the switch.
5 Door-open switch (SW301) detects whether or not the print-cartridge door is closed and the print cartridge is installed properly. Printing cannot continue until the print-cartridge door is closed and the print cartridge is in its correct position.
6 Solenoid (SL1) activates the pickup roller.
7 Paper-detection sensor (PS931) senses when paper is in the media input tray or the priority input tray.

Fax functions and operation

The following sections describe the fax capabilities of the product.

PSTN operation

The public switched telephone network (PSTN) operates by having a central office (CO) that generates a constant voltage on the TIP and RING wires (48 V, usually). A device goes on-hook by connecting impedance (such as 600 ohms for the U.S.) across TIP and RING, allowing a line current to flow. The CO can detect this current and can send impulses, such as dial tones. The product generates more signaling tones, such as dialing digits, to tell the CO how to connect the call. The product can also detect tones, such as a busy tone from the CO, that tell it how to behave.

When the call is finally connected, the CO behaves as if it were a piece of wire connecting the sender and receiver. This is the period during which all of the fax signaling and data transfer occurs. When a call is completed, the circuit opens again and line current flow ceases, removing the CO connection from both the sender and the receiver.

All of this is done with a two-wire arrangement. The two wires are called TIP and RING on all phone systems. On most phone systems, the wires appear on pins 3 and 4 of the RJ-11 modular jack (the one on the LIU). These two wires do not have to be polarized because all the equipment works with either TIP or RING on pin 3 and the other wire on pin 4. This means that cables of either polarity can interconnect and will still work.

These are the basic functions of PSTN operation that are assumed in the design of the fax subsystem. The product generates and detects the signaling tones, currents, and data signals that are required to transmit and receive faxes on the PSTN.

The fax subsystem

The formatter, LIU, firmware, and software all contribute to the fax functionality. The designs of the formatter and LIU, along with parameters in the firmware, determine the majority of the regulatory requirements for telephony on the product.

The fax subsystem is designed to support V.34 fax transmission, lower speeds (such as V.17 fax), and older fax machines.

Formatter in the fax subsystem

The formatter contains the modem chipset (DSP and CODEC) that controls the basic fax functions of tone generation and detection, along with channel control for the fax transmissions.

The CODEC and its associated circuitry act to control transmit and receive gains, and to compensate for transmission signal coupling into the receive channel. The formatter also contains circuitry that adds termination impedance to help match the telephone network impedance.

LIU in the fax subsystem

Two versions of LIU are used in the HP LaserJet 3380 all-in-one. One is used in the North American, South American, and Asian countries/regions. The other is used primarily in European countries/regions.

The following are features that are different in the European version:

- a different voltage-protection device
- current limiting of the dc current
- filtering for the countries/regions that use billing or metering tones
- control of the impedance of the dc circuit through the SHUNT signal

Because the TIP and RING are not polarized, all LIU circuitry that connects to TIP and RING is bidirectional. The LIU operates identically when TIP and RING are reversed.

Safety isolation

The most important function of the LIU is the safety isolation between the high-voltage, transient-prone environment of the telephone network (telephone network voltage [TNV]) and the low-voltage analog and digital circuitry of the formatter (secondary extra-low voltage [SELV]). This safety isolation provides both customer safety and product reliability in the telecom environment.

Any signals that cross the isolation barrier do so either optically or magnetically. The breakdown voltage rating of barrier-critical components is greater than 1.5 kV.

Safety-protection circuitry

In addition to the safety barrier, the LIU protects against RING and over-current events.

Telephone over-voltages can be either differential mode or common mode. The RING can be transient in nature (a lightning-induced surge or ESD) or continuous (a power line crossed with a phone line). The LIU protection circuitry provides margin against combinations of RING events.

Common mode protection is provided by the selection of high-voltage-barrier critical components (transformer, relay, and optoisolators). The safety barrier of the LIU PCB traces and the clearance between the LIU and surrounding components also contribute to common mode protection.

A voltage suppressor (a crowbar-type SIDACTOR) provides differential protection. This device becomes low impedance at approximately 300 V differential, and crowbars to a low voltage. A series thermal switch works in conjunction with the crowbar for continuous RING events, such as crossed power lines.

When the differential RING is continuous, the resulting over-current causes the thermal switch to become high impedance, disconnecting RING from the network and protecting the crowbar from thermal overload. The thermal switch automatically resets to low impedance after the over-current condition is removed, reconnecting RING to the network.

Data path

The magnetically coupled signals that cross the isolation barrier go either through a transformer or a relay. The TIP and RING signals use a transformer to cross the isolation barrier.

TIP and RING are the two-wire paths for all signals from the telephone network. All signaling and data information comes across them, including fax tones and fax data.

The telephone network uses dc current to determine the hook state of the telephone, so line current must be present during a call. On some line interfaces this current flows through the transformer, but on the LIU, a capacitor blocks the current from going into the transformer.

Blocking the current with a capacitor prevents the core of the transformer from being saturated by the high dc voltage, which can affect the ac signal quality. Rather than permitting the current to flow through the transformer, this LIU directs the current through another circuit called a gyrator or dc hold circuit. This creates the path for the central office-current flow when a call is in progress.

Hook state

Another magnetically coupled signal is the control signal that disconnects the downstream telephone devices (such as a phone or answering machine). A control signal originating on the formatter can change the relay state, causing the auxiliary jack (downstream jack) to be disconnected from the circuit.

The product takes control of calls that it recognizes as fax calls. If the product does not directly pick up the call, it monitors incoming calls for the fax tone or for the user to direct it to receive a fax. This idle mode is also called eavesdropping. This mode is active when the product is on-hook but current exists in the downstream phone line because another device is off-hook. During eavesdropping, the receive circuit is enabled but has a different gain from the current that is generated during normal fax transmissions.

The product does not take control of the line unless it detects a fax tone or the operator tells it to connect manually. This feature allows the user to make voice calls from a phone that is connected to the product without being cut off if a fax is received.

Downstream current detection

The aux phone detect signal is optically coupled. This signal tells the firmware that an active phone (or modem or answering machine) is connected to the auxiliary port of the product (the right side of the RJ-11 jack).

A circuit that can detect current above a certain threshold generates the downstream-current-detection signal. The downstream current goes through a resistor, generating a voltage. If this voltage is above the threshold level, the signal changes state.

The downstream-current-detection signal is coupled back to the formatter through an optoisolator and across the safety isolation barrier. The firmware uses this signal to ensure that the product does not go off-hook (and disconnect a downstream call) until it has been authorized to do so (by a manual fax start or detection of the appropriate tones).

Hook switch control

Another optically coupled signal is the hook switch control. This signal from the formatter causes an optoisolator on the LIU to activate (making an open circuit into a short circuit). When shorted, the circuit is drawing dc current from the central office and is considered “on-hook.” When open, no dc current flows and the state is considered to be “off-hook.”

For pulse dialing, the optoisolator is toggled on and off with a particular timing sequence to generate pulses that the central offices of the telephone company recognizes as dialing digits.

Ring detect

Another optically coupled signal on the LIU is ring detect. Ring detect is a combination of voltage levels and cadence (time on and time off). Both must be present in order for the product to detect a valid ring.

The LIU works with the firmware to determine if an incoming signal is an answerable ring. When circuits on the LIU detect a ring voltage above a certain threshold, a corresponding signal is passed to the formatter to indicate that the ring is above the threshold. The firmware then measures the amount of time that the signal is high and low, and qualifies the cadence to determine whether it is a valid ring.

Line current control

The dc current from the CO needs to have a path to flow from TIP to RING. Because the current does not flow in the transformer, a path through some transistors and diodes (the dc hold circuit) acts like a simulated inductor (thus replacing the function of the transformer). This dc hold circuit is the main component of the voltage-current characteristic between TIP and RING.

Two other functions of this block of circuits are the current limit and the SHUNT for Europe. Current limit basically maintains a constant current from TIP to RING after the voltage reaches about 50 mA. Even if the voltage varies, the current will remain the same.

The SHUNT function changes the impedance (the current-voltage characteristic) during certain special events, such as pulse dialing and when the devices goes on-hook.

During such an event, the firmware tells the DSP on the formatter to activate SHUNT. A signal goes to the LIU through an optoisolator (optically coupled), which changes the state of some transistors so that the board has a linear current characteristic (normally, it is current-limited). Then more current can flow to the network, as required by these special events.

Billing (metering) tone filters

Switzerland and Germany provide high-frequency ac signals on the phone line in order to bill customers. The LC (inductor, capacitor) notch filters are provided on the European LIUs to prevent these billing signals from adversely affecting the data path and the dc hold circuit.

An additional filter in the cable (for certain countries/regions) can, in some cases, supplement these LC notch filters. Because these billings signals are not used in the U.S., these filters are not present on the U.S. LIU.

Fax page storage in flash memory

Fax pages are the electronic images of the document page. They can be created in any of three ways: scanned to be sent to another fax machine, generated to be sent by the computer, or received from a fax machine to be printed.

The product stores all fax pages in flash memory automatically. After these pages are written into flash memory they are stored until the pages are sent to another fax machine, printed on the product, transmitted to the computer, or erased by the user.

These pages are stored in flash memory, which is the nonvolatile memory that can be repeatedly read from, written to, and erased. The product has 4 MB of flash memory, of which 3.4 MB is available for fax storage. The remaining 0.6 MB is used for the file system and reclamation. Adding RAM does not affect the fax page storage because the product does not use RAM for storing fax pages.

Stored fax pages

The user can reprint stored fax pages in case of errors. Other fax devices store fax pages in either normal RAM or short-term RAM. Normal RAM immediately loses its data when power is lost, while short-term RAM loses its data about 60 minutes after a power failure. Flash memory maintains its data for years without any applied power.

Advantages of flash memory storage

Fax pages stored in flash memory are persistent. They are not lost as a result of a power failure, no matter how long the power is off. Users can reprint faxes in case the print cartridge runs out of toner or the product experiences other errors while printing faxes.

The product also has scan-ahead functionality that makes use of flash memory. Scan-ahead automatically scans pages into flash memory before a fax job is sent. This allows the sender to pick up their original document immediately after it is scanned, eliminating the need to wait until the fax is transmission is complete.

Because fax pages are stored in flash memory, not RAM, more RAM is available to handle larger and more complicated copy and print jobs.

5 Removal and replacement

This chapter provides information about the following topics.

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Removal and replacement strategy

This chapter documents the removal and replacement of field replaceable parts (FRUs) only. Reinstallation is generally the reverse of removal. Occasionally, notes and hints are included to provide directions for difficult or critical replacement procedures.

WARNING! Unplug the power cord from the power outlet (at the wall receptacle) before attempting to service the product. If this warning is not followed, severe injury can result. Certain functional checks during troubleshooting must be performed with power supplied to the product. However, the power supply should be disconnected during removal.

Sheet-metal and plastic edges in the product can be sharp. Use caution when servicing this product.

Never operate or service the product with the protective cover removed from the laser/scanner assembly. The invisible reflected beam can damage eyesight.

CAUTION The product contains components that are sensitive to electrostatic discharge (ESD). Always perform service work at an ESD-protected workstation. If an ESD-protected workstation is not available, discharge body static by grasping the print-engine chassis before touching an ESD-sensitive component. Ground the print engine chassis *before* servicing the product.

CAUTION Do not bend or fold the flat-flexible cables (FFCs) during the removal or reinstallation process.

Note For service purposes, the upper part of the HP LaserJet 3380 all-in-one is, in effect, the "scanner" and the lower part is the "printer." Together, they also act as a photocopier or fax machine, but the service description here is simplified by referring to copier or fax functionality only when specifically necessary.

Hint To install a self-tapping screw, first turn it counterclockwise to align it with the existing thread pattern, and then carefully turn it clockwise to tighten. Do not overtighten.

Required tools

- #2 Phillips screwdriver with magnetic tip
- Small flat-blade screwdriver
- #8 torx screwdriver
- Needle-nose pliers
- ESD mat (if available)
- Penlight (optional)

CAUTION Do not use a pozidrive screwdriver or any motorized screwdriver. These can damage screws or screw-threads on the product.

Before performing service

- If possible, print a configuration page and menu structure report so that the customer's settings can be restored. See Troubleshooting tools.
- Remove all media from the product.
- Remove the media input tray.
- Turn off the power by using the power switch.

- Unplug the power cord from the wall receptacle.
- Place the product on an ESD mat, if available. If an ESD-protected workstation is not available, discharge body static and ground the print engine chassis *before* servicing the product.
- Remove the print cartridge (see Print cartridge).

After performing service

- Replace the print cartridge.
- Reload the input tray with media.
- Restore customer configuration settings.

Print cartridge

Note You will feel resistance when you open the print-cartridge door.

1. Open the print-cartridge door.
2. Grasp the print cartridge and remove it from the product.

CAUTION To prevent damage, do not expose the print cartridge to direct or bright light. Cover it with a piece of paper.

Figure 5-1. **Remove the print cartridge**

Parts removal order

Use the following diagrams to determine which parts must be removed before removing other parts.

1. Locate the part that you want to remove on one of the diagrams.
2. If the part is on the first diagram, separation of the printer from the scanner is not required.

3. If the part is on the second diagram, you are required to separate the scanner from the printer before removing the part.

Scanner/printer separation not required:

ADF pickup-roller assembly

ADF document-feed guide/cleanout comb

ADF separation pad

height guides

transfer roller

LIU

ADF lid
- ADF scanner glass and frame

control-panel bezel
- control-panel assembly
  - control-panel chassis
    - speaker

left-side scanner cover
- scanner motor controller board

left-side door

right-side cover
- scanner right-side cover
- back cover
  - stepping motor

formatter
- left-bottom frame-support
- pickup assembly
- engine deflector shield

print-cartridge door
- front cover (also requires removing left-side door and right-side cover)
  - front-guide assembly
    - pickup assembly (also requires removing formatter)
    - paper lift-plate assembly

Figure 5-2. Parts removal order (1 of 2)

Scanner/printer separation required:

Note

The scanner assembly might be contaminated if it is opened outside of a cleanroom environment. For this reason, the entire scanner assembly is replaceable only as a unit. Replacing the scanner assembly as an entire assembly replaces the CCD scan module, the CCD scan motor, and the cable. If the ADF fails, it too is replaceable only as an entire assembly. Replacing the ADF replaces the ADF cable and other ADF submechanisms.

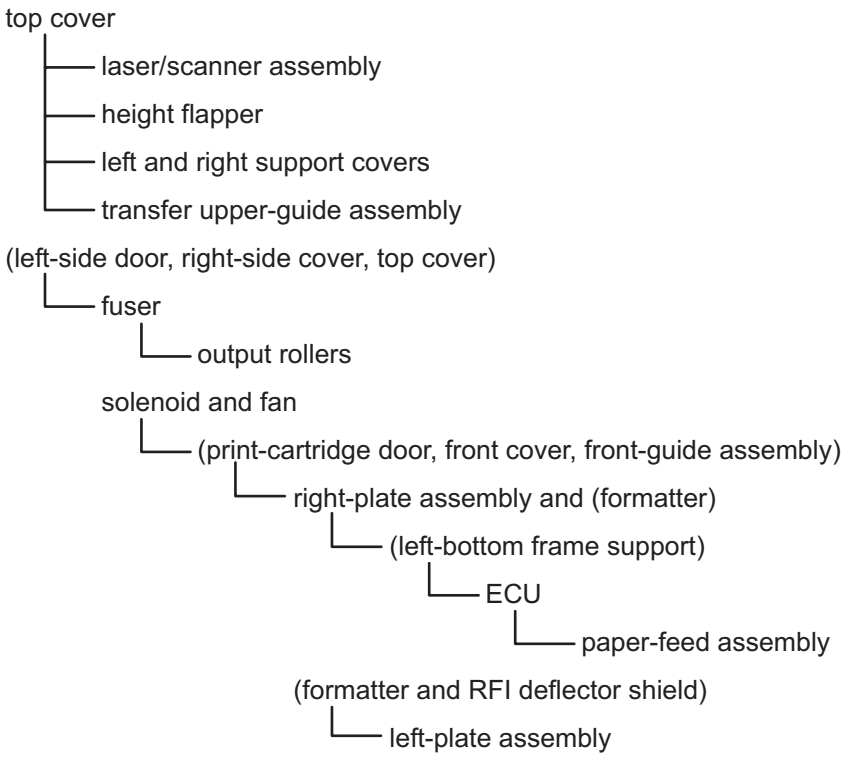

Figure 5-3. **Parts removal order (2 of 2)**

Scanner assemblies

The parts described in this section can all be removed without separating the scanner from the printer.

Printer right-side cover

1. Open the print-cartridge door.
2. Open the straight-through output door.
3. Remove one screw (callout 1).

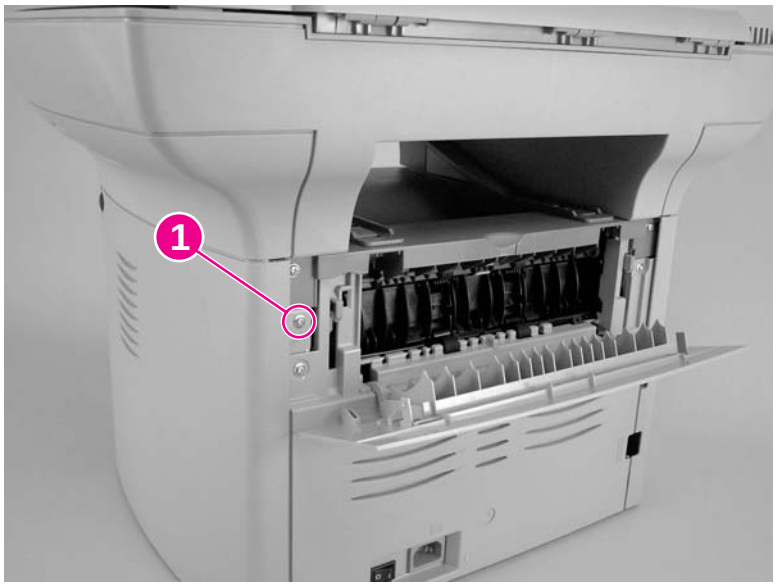

Figure 5-4. **Remove the printer right-side cover (1 of 3)**

4. Lift the right side of the product, and release the tab on the bottom of the cover.

Note You can slide the product slightly over the edge of a table to gain access to this tab if you do not want to lift the product.

Figure 5-5. **Remove the printer right-side cover (2 of 3)**

5. Slightly separate the cover from the product, and then pull it towards the back of the product to remove it.

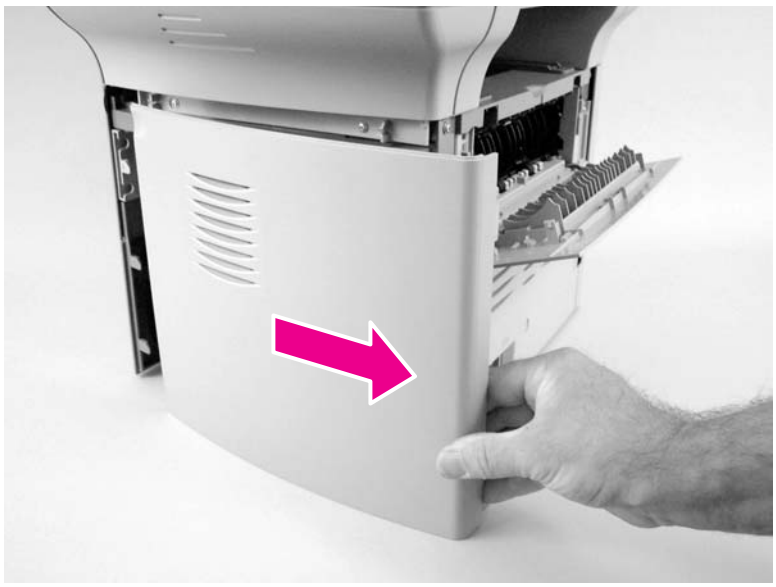

Figure 5-6. **Remove the printer right-side cover (3 of 3)**

Scanner side covers

1. Remove the printer right-side cover. See Printer right-side cover.

2. Remove the two screws (callout 1) that fasten the scanner right-side cover in place.

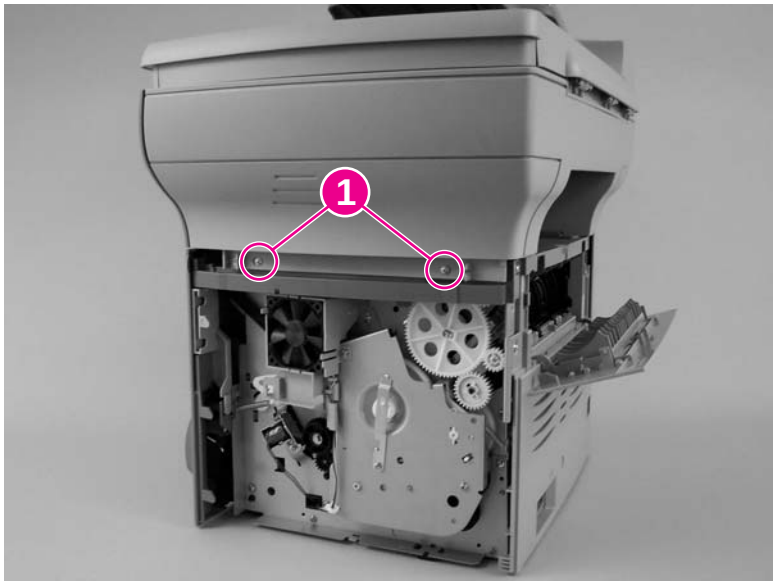

Figure 5-7. **Remove the scanner right-side cover (1 of 2)**

3. Slide the cover toward the back of the product, and remove it.

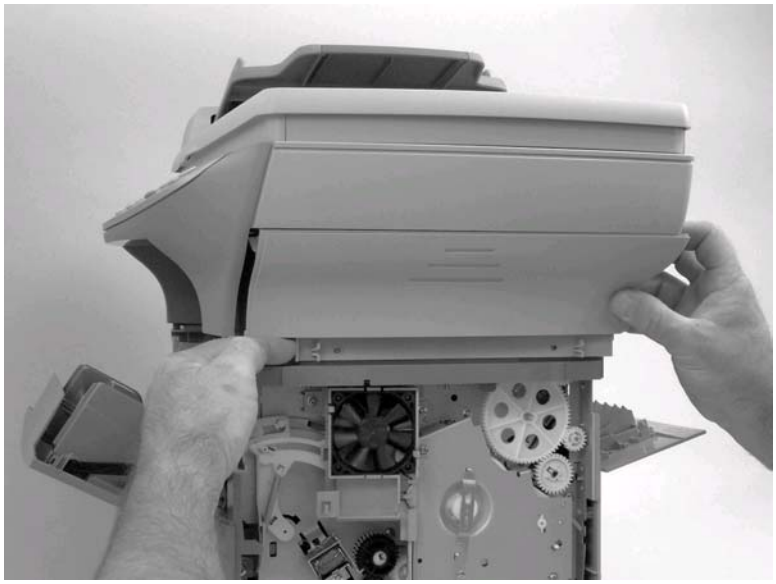

Figure 5-8. **Remove the scanner right-side cover (2 of 2)**

4. Open the print cartridge door and the left-side door to expose the screws (callout 2) that hold the scanner left side cover.

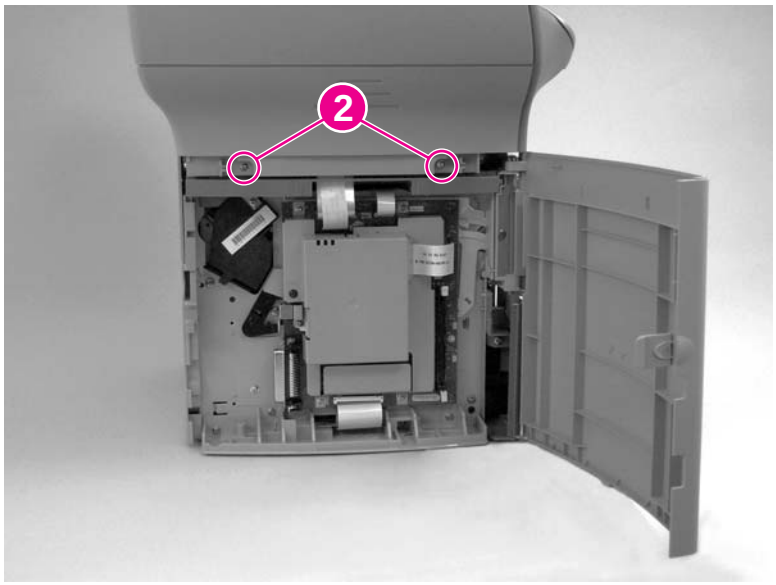

Figure 5-9. **Remove the left-side scanner cover (1 of 2)**

5. Slide the cover toward the back of the product, and remove it.

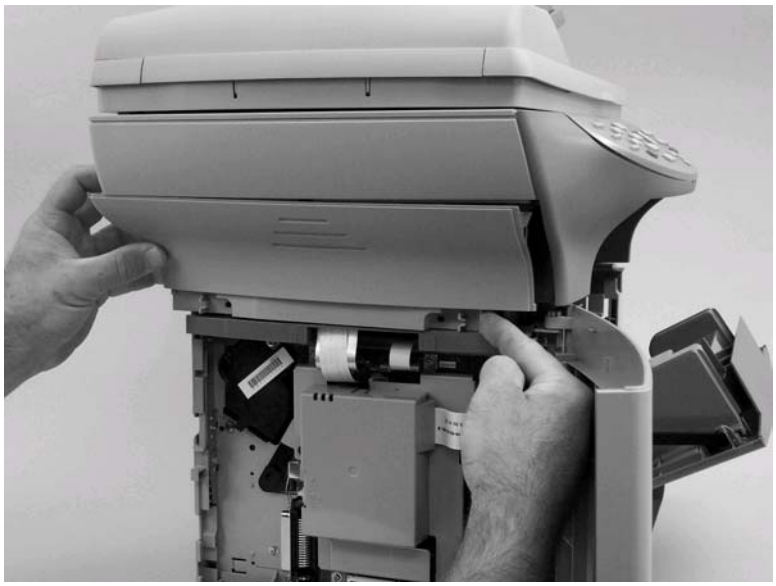

Figure 5-10. **Remove the left-side scanner cover (2 of 2)**

Automatic document feeder (ADF) assembly

1. Open the cover.
2. Pull the two hinge-tab locking shims straight up (callout 1).

3. Slightly close the cover, and then gently lift it up to remove it.

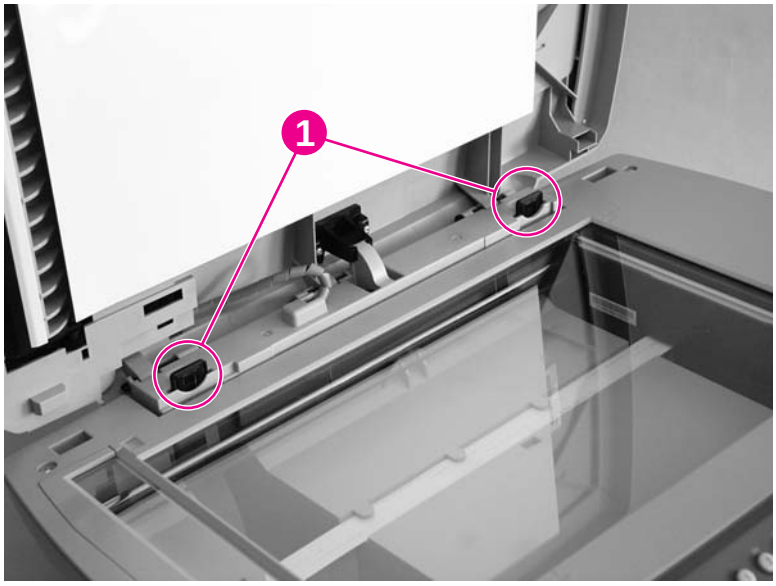

Figure 5-11. **Remove the ADF assembly**

ADF pickup-roller assembly

The ADF pickup-roller assembly and document-feed guide/cleanout comb are user-replaceable parts, but the ADF separation pad is not. Instructions for replacing the pickup-roller assembly and the document-feed guide/cleanout comb appear in chapter 3 of this manual and are repeated here. If the ADF has trouble picking paper, the ADF pickup-roller assembly might need to be replaced.

1. Make sure that the product power is off, and then open the ADF cover. Rotate the input tray up and then away from the scanner.

Figure 5-12. **Remove the ADF pickup-roller assembly (1 of 5)**

2. Press the round, green button (callout 1) while lifting the green lever (callout 2). Rotate the green lever until it stops in the open position. The pickup-roller assembly will remain on the black surface.

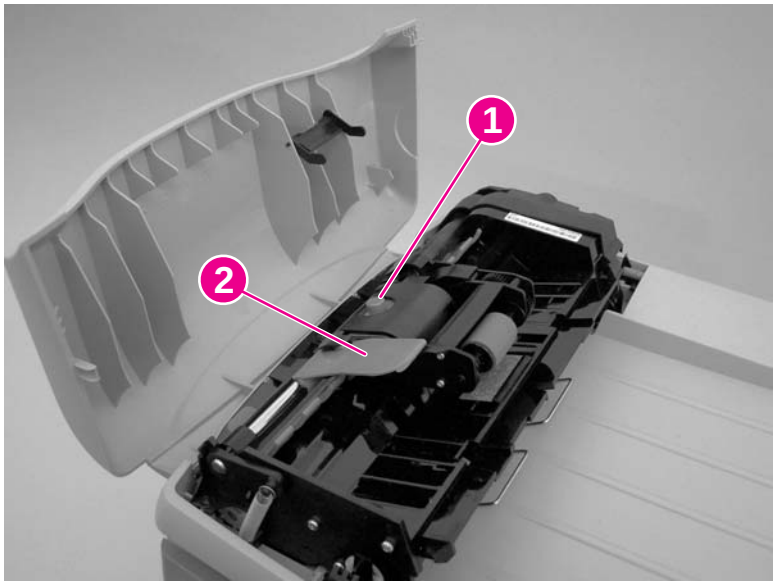

Figure 5-13. **Remove the ADF pickup-roller assembly (2 of 5)**

3. Remove the pickup-roller assembly, and put the replacement assembly (callout 3) in exactly the same place. The largest roller goes in back, and the gear side faces toward the back of the product.

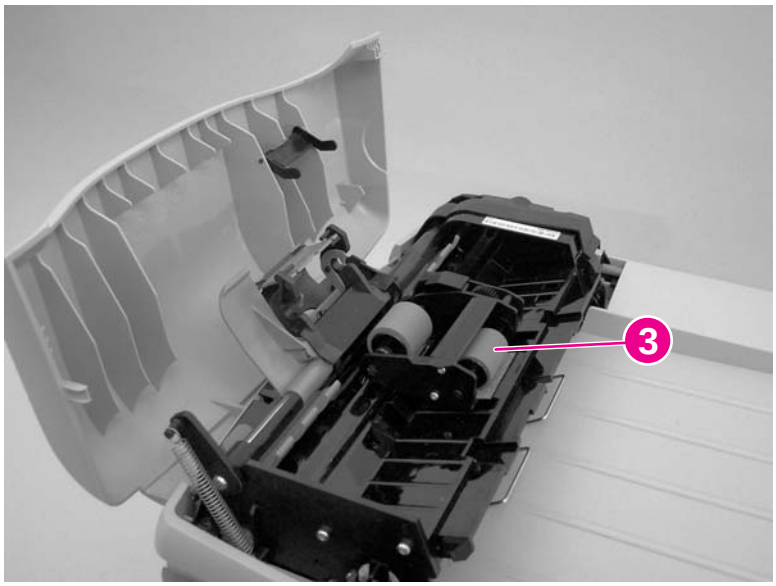

Figure 5-14. **Remove the ADF pickup-roller assembly (3 of 5)**

4. Lower the green lever until the flat, green part fits between the rollers. Press down on the pickup roller frame until the assembly snaps into place.

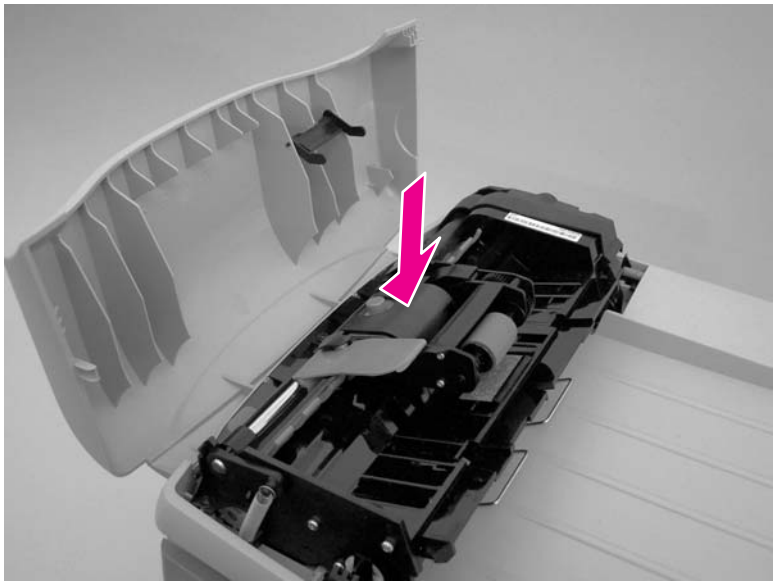

Figure 5-15. **Remove the ADF pickup-roller assembly (4 of 5)**

5. To check for proper installation, lift the green lever until it remains open. The new pickup-roller assembly should be secured to the lever assembly and should not fall out. Make sure that both sides of the assembly are secured by the green hooks (callout 4).

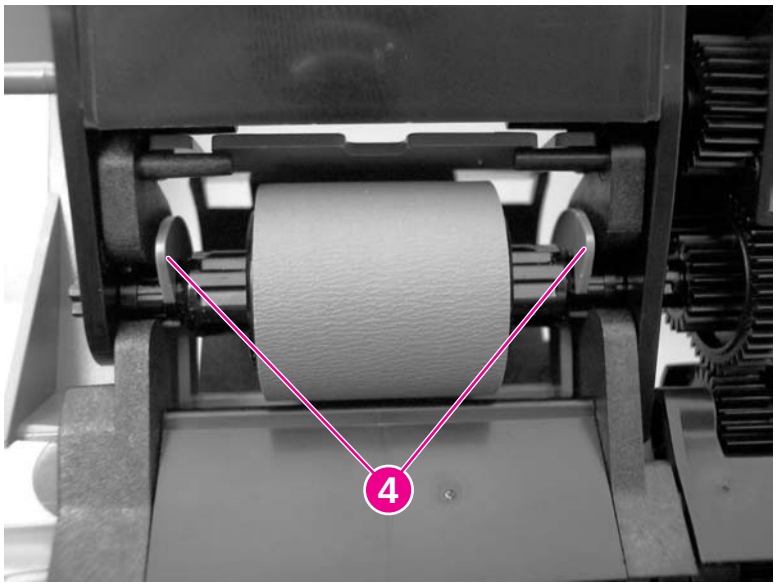

Figure 5-16. **Remove the ADF pickup-roller assembly (5 of 5)**

ADF document-feed guide/cleanout comb

1. Open the ADF door.

2. Unsnap the ADF document-feed guide/cleanout-comb one side at a time, and then gently pull the guide back to remove it.

Figure 5-17. **Remove the ADF document-feed guide/cleanout comb**

Reinstallation tip

Make sure that both sides of the ADF document-feed guide/cleanout comb snap into place. Otherwise, ADF jams might occur.

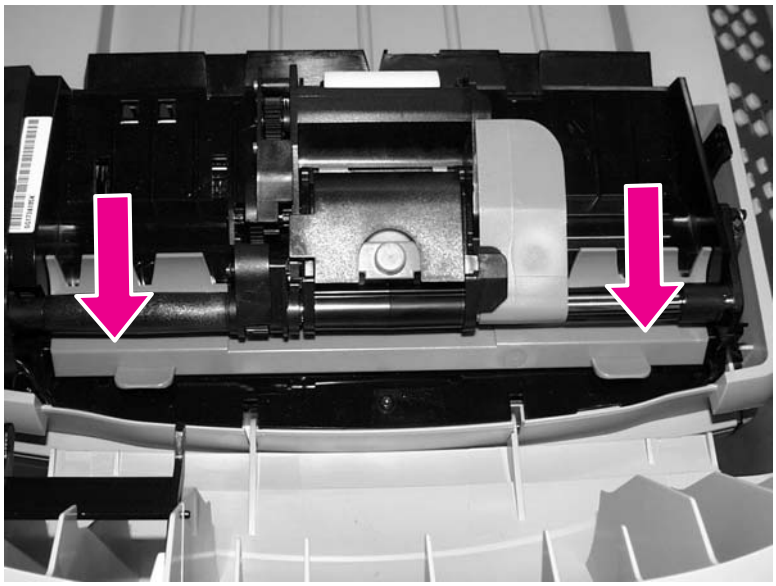

Figure 5-18. **Install the ADF document-feed guide/cleanout comb**

ADF input-tray flag

1. Open the ADF cover.

2. Gently flex the plastic rib that retains the flag hinge until the front flag hinge clears the mounting hole. Rotate the ADF input-tray flag until the hinge pin clears the plastic rib. Pull the flag towards you to release the back hinge.

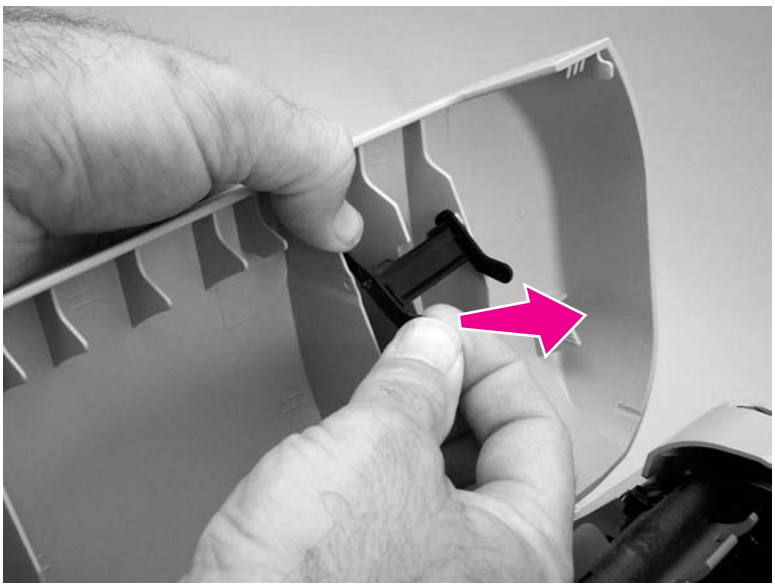

Figure 5-19. **Remove the ADF input-tray flag**

Reinstallation tip

When reinstalling the ADF input-tray flag, make sure that the long, straight end of the spring is tucked under the lip on the flag and that the bent end of the spring threads through the hole in the plastic rib that retains the flag.

Make sure that the ADF input-tray flag can move freely.

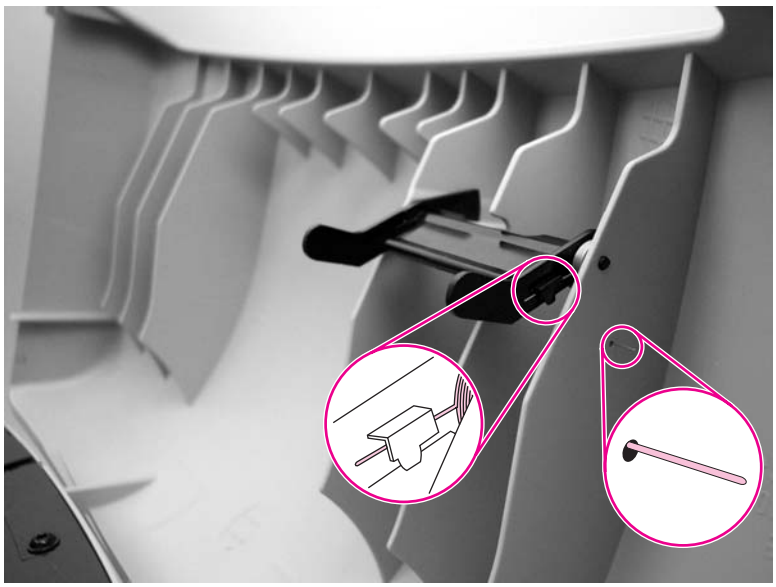

Figure 5-20. **Correct positioning of the ADF input-tray spring**

ADF separation pad

1. Open the ADF door. Use the green lever to raise the pickup-roller assembly.

2. Use a #8 torx driver to remove the two screws that secure the ADF separation pad.

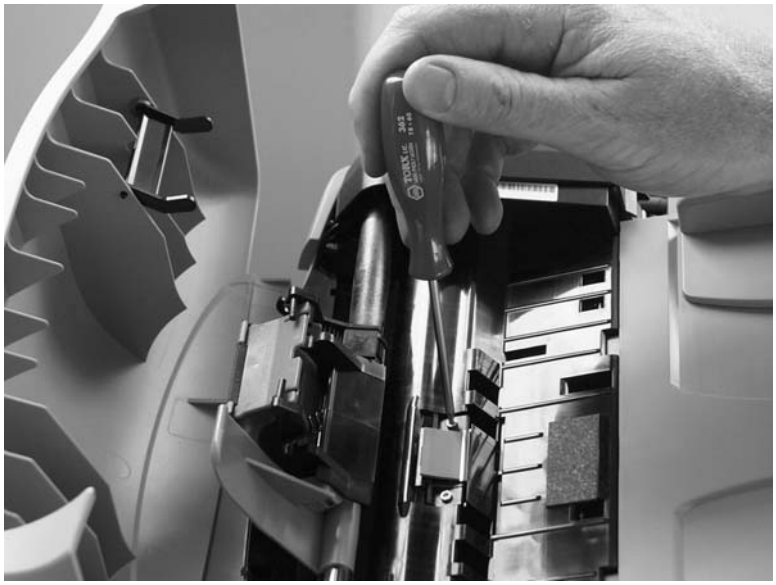

Figure 5-21. **Remove the ADF separation pad**

3. Pull gently on the rubber ADF separation pad to remove it .

CAUTION Avoid touching the flatbed glass or the ADF separation pad. Skin oils and fingerprints can contaminate the glass or pad and cause print-quality problems or paper-pickup problems.

Control-panel bezel

1. Remove the control-panel bezel by lifting up on the edges of both sides of the bezel until all of the snaps are disengaged. Set the bezel aside.

Figure 5-22. **Remove the control-panel bezel**

To reinstall the control-panel bezel

1. Align the tab at the base of the new bezel with the lower notch at the bottom of the control panel (callout 1). The bezel tab should align with the inside of the notch.

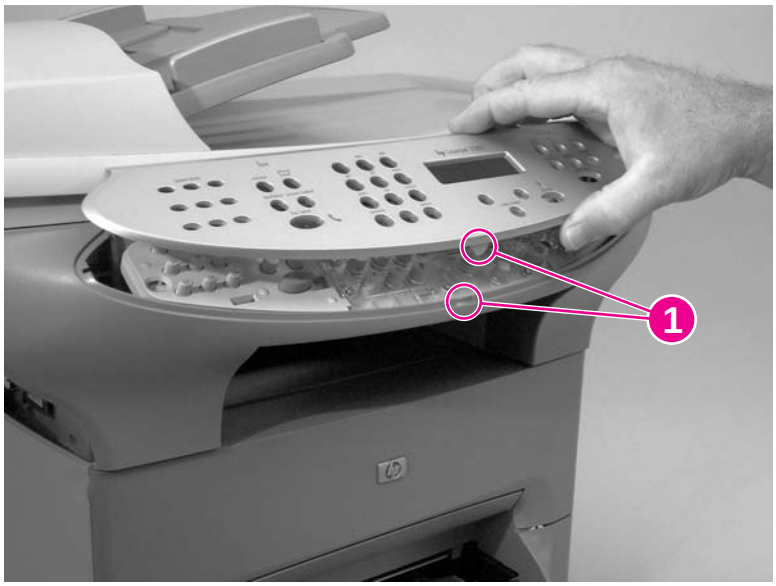

Figure 5-23. **Reinstall the control-panel bezel (1 of 2)**

2. Press the bottom of the bezel onto the control panel first, and then continue to press while pushing up toward the top of the bezel until it snaps into place.

Figure 5-24. **Reinstall the control-panel bezel (2 of 2)**

Control panel

1. Four sliding tabs are at the top of the control panel. The second tab from the right locks into place. Use a small flat-blade screwdriver to press down on the locking portion of the snap-fit that holds the tab (callout 1), and slide the control panel to the right while pressing down on the tab. (The inset shows the snap-fit.)

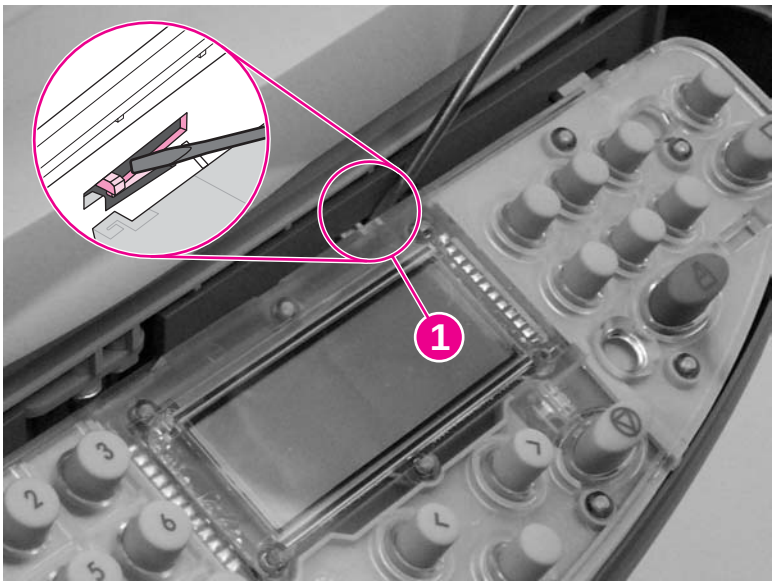

Figure 5-25. **Remove the control panel (1 of 2)**

2. Gently lift the bottom of the control panel up. Disconnect the cable (callout 2) from the back of the control panel.

CAUTION Do not bend or fold the FFCs during the removal or reinstallation process.

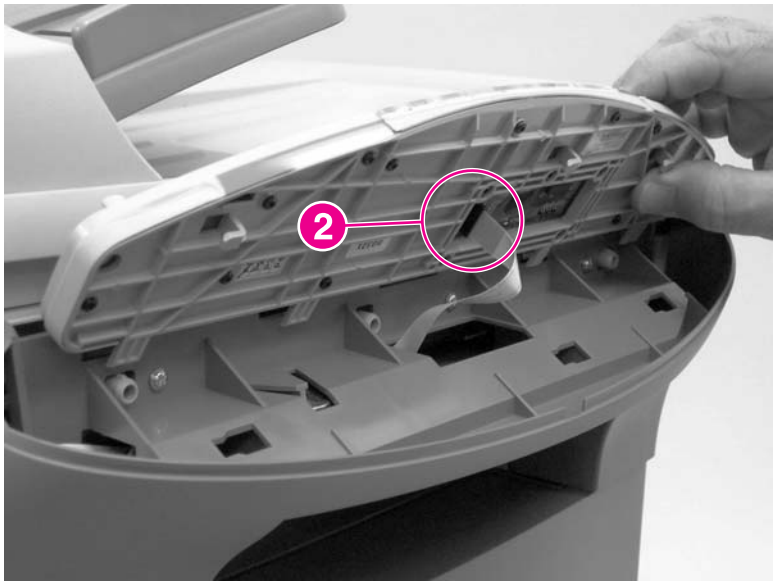

Figure 5-26. **Remove the control panel (2 of 2)**

Reinstallation tip

Insert the four tabs into the slots, push the control panel down, and then slide the control panel to the left to lock it in place. Make sure that the snap-fit locks at the same tab shown in Figure 5-25. Remove the control panel (1 of 2).

Control-panel chassis

1. Remove three screws (callout 1).

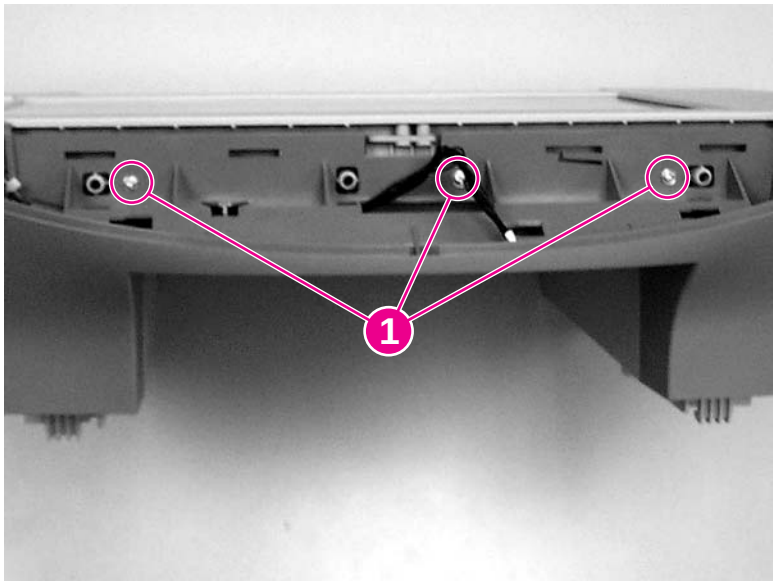

Figure 5-27. **Remove the control-panel chassis (1 of 2)**

2. Remove the control-panel chassis by lifting up on both sides of the chassis to release the tabs on the corners, and then pull the chassis away from the scanner body.

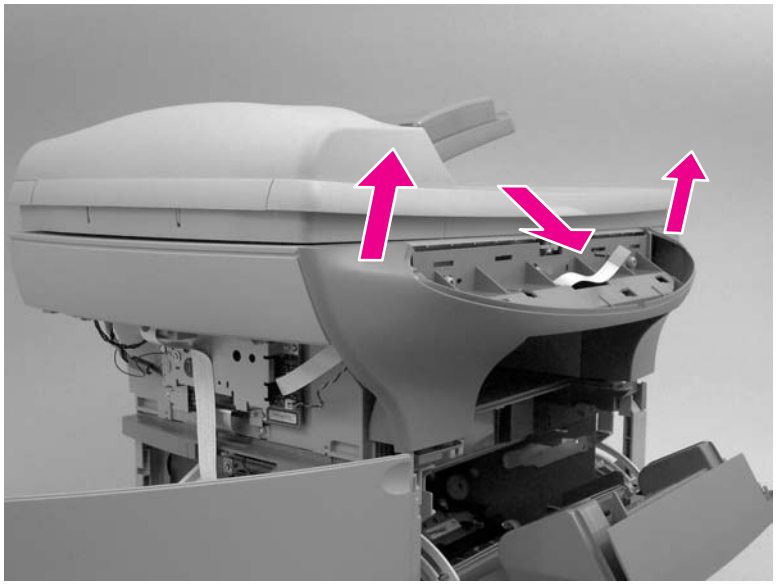

Figure 5-28. **Remove the control-panel chassis (2 of 2)**

Reinstallation tip

The speaker and control-panel cable are both replaceable parts. Make sure that the control-panel cable and speaker cable are correctly routed when reinstalled.

Align the bottom guides on the control-panel chassis with the slots on the scanner assembly (callout 2). Push the control-panel chassis in *firmly* until it snaps into place.

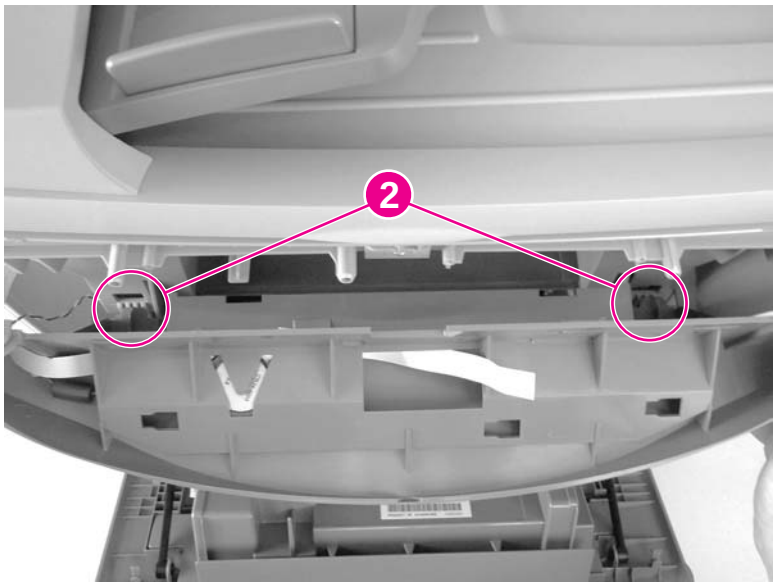

Figure 5-29. **Reinstall the control-panel chassis**

Speaker

1. Remove the left scanner cover. See Scanner side covers.
2. Remove the control-panel chassis. See Control-panel chassis.

3. Disconnect the speaker cable connector (callout 1) on the scanner PCA.

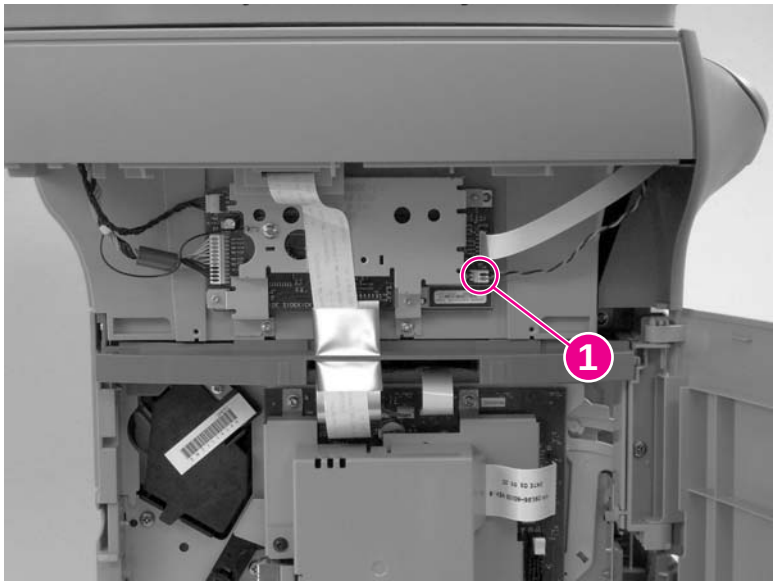

Figure 5-30. **Remove the speaker (1 of 2)**

4. Unthread the speaker cable (callout 2) from the back of the control-panel chassis, and slide the speaker out (callout 3).

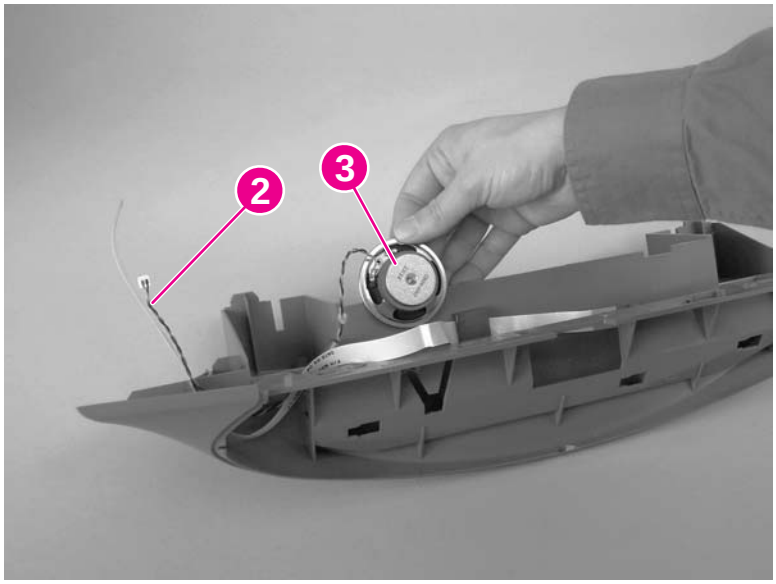

Figure 5-31. **Remove the speaker (2 of 2)**

Scanner PCA

1. Remove the left scanner cover. See Scanner side covers.

2. Disconnect four cables from the scanner PCA (callout 1).

CAUTION Do not bend or fold the FFCs during the removal or reinstallation process.

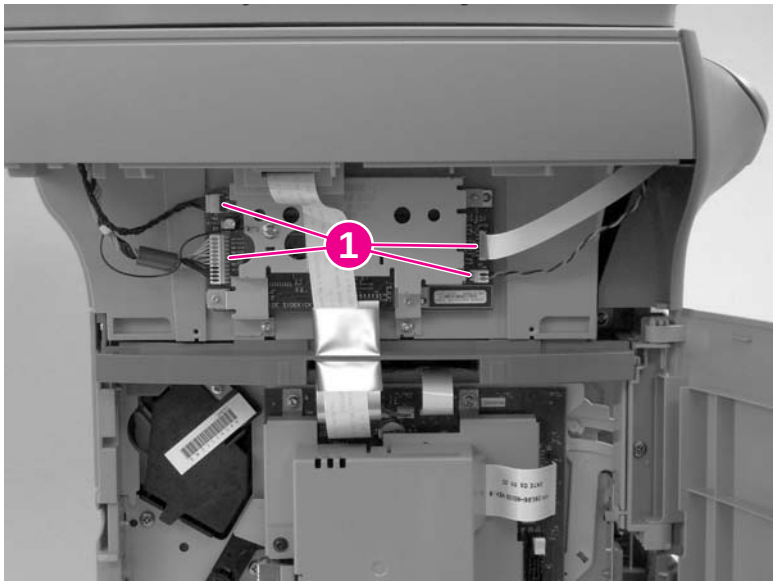

Figure 5-32. **Remove the scanner PCA (1 of 3)**

3. Remove the screw shown in callout 2, and remove the wire that it holds in place.
4. Remove the two screws shown in callout 3, and then remove the scanner PCA.

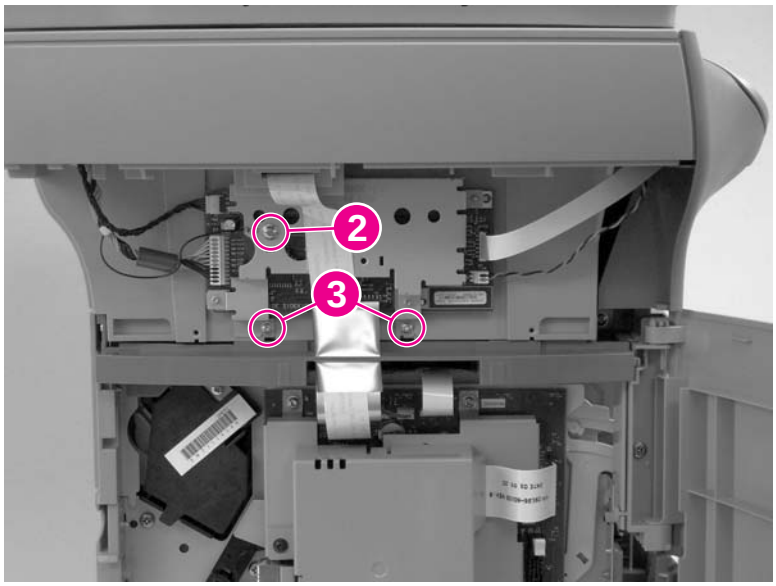

Figure 5-33. **Remove the scanner PCA (2 of 3)**

Note If the scanner and printer are not separated, disconnect the two FFCs at the top of the formatter before removing the scanner PCA (callout 4).

CAUTION Do not bend or fold the FFCs during the removal or reinstallation process.

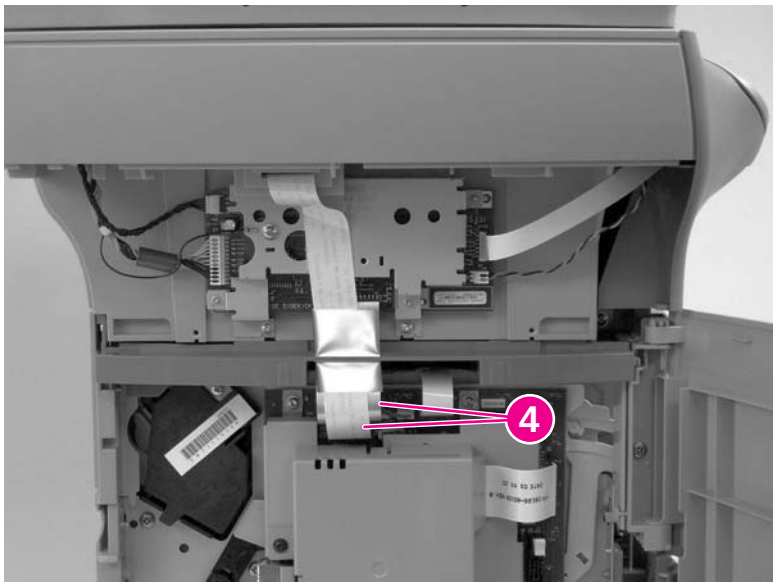

Figure 5-34. **Remove the scanner PCA (3 of 3)**

ADF scanner glass

CAUTION Avoid touching the flatbed glass or the ADF separation pad. Skin oils and fingerprints can contaminate the glass or pad and cause print-quality problems.

1. Remove one screw (callout 1), lift out the plastic ADF scanner-glass frame, and then lift out the glass.

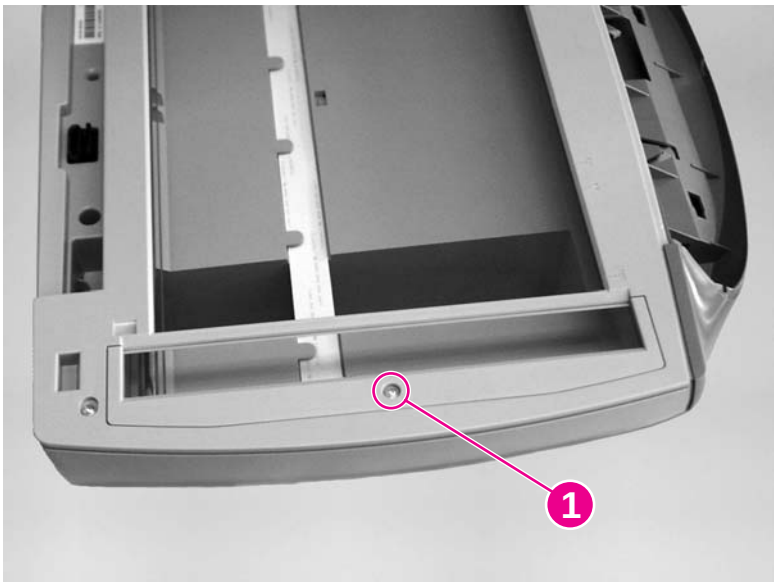

Figure 5-35. **Remove the ADF scanner glass**

Reinstallation tip

Replace the glass first, and then install the frame. Make sure the lock mechanism is in the released position. Press down on the frame and glass until the lock mechanism snaps back into the locked position, as shown in Figure 5-36. Install the ADF scanner glass.

Figure 5-36. **Install the ADF scanner glass**

Separation of the scanner from the printer

The upper part of the HP LaserJet 3380 is, in effect, the "scanner" and the lower part is the "printer." Together, they also act as a photocopier or fax machine, but the service description here is simplified by referring to copier or fax functionality only when specifically necessary.

CAUTION You must unplug the printer before separating the scanner from the printer, or you might damage both the printer and the scanner.

Separate the scanner from the printer

1. Remove the printer right-side cover. See Printer right-side cover.
2. Remove the screw on the right side of the printer (callout 1).

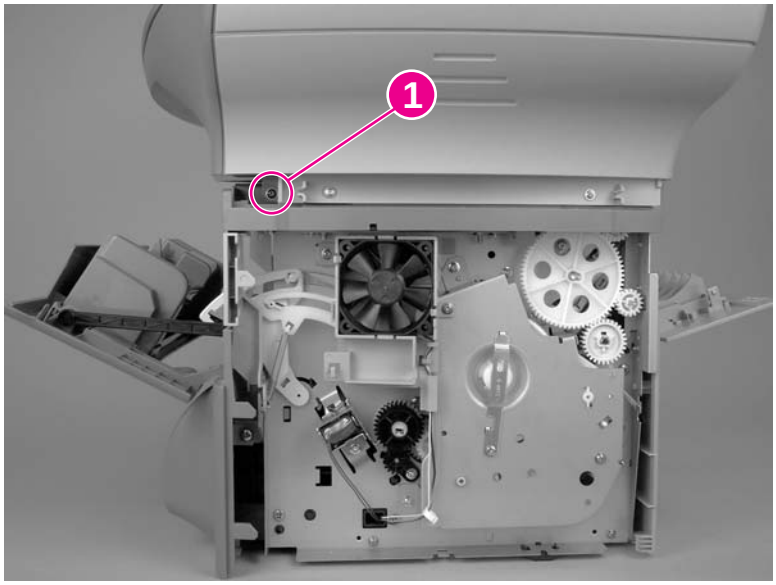

Figure 5-37. **Separate the scanner from the printer (1 of 4)**

3. Open the left-side door, and remove the screw on the left side of the printer (callout 2). Disconnect the two FFCs at the top of the formatter (callout 3).

CAUTION Do not bend or fold the FFCs during the removal or reinstallation process.

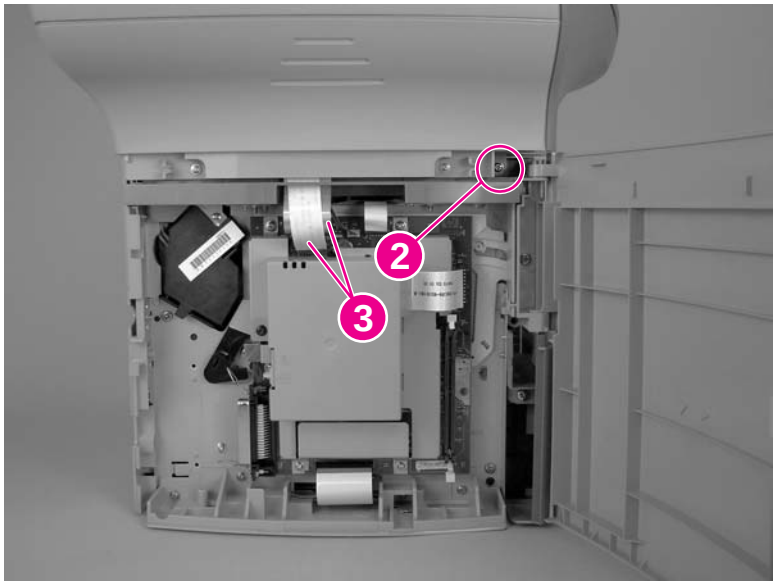

Figure 5-38. **Separate the scanner from the printer (2 of 4)**

4. Remove the two screws from the back of the product (callout 4).

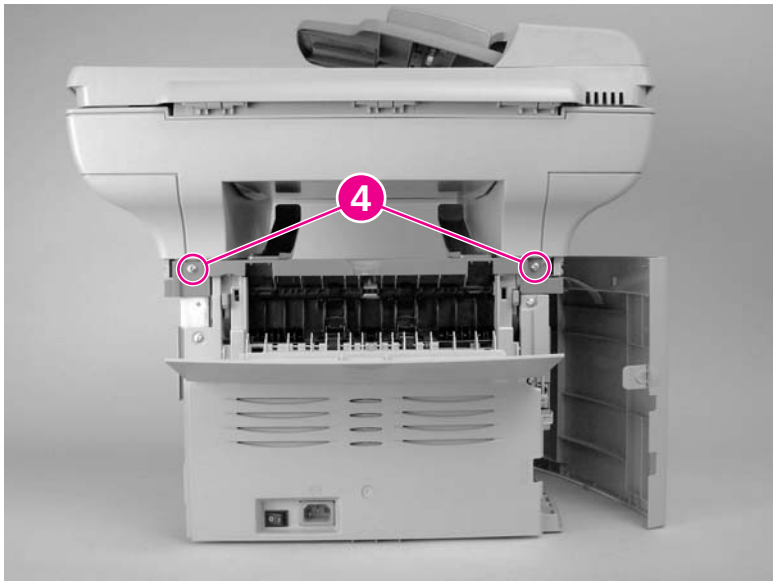

Figure 5-39. **Separate the scanner from the printer (3 of 4)**

5. Slide the scanner toward the front of the product, and lift it upward to separate it from the printer.

Figure 5-40. **Separate the scanner from the printer (4 of 4)**

External components

This section includes the procedures to remove the height guides and the printer covers.

Note The procedure for removing the printer right-side cover is included in the section for separating the scanner from the printer. See Printer right-side cover.

Height guides

Note This procedure can be completed without separating the scanner and printer. For clarity only, the following steps show the scanner and printer separated.

1. Use a short, flat-blade screwdriver to gently push down on the height-guide locking tab (callout 1).

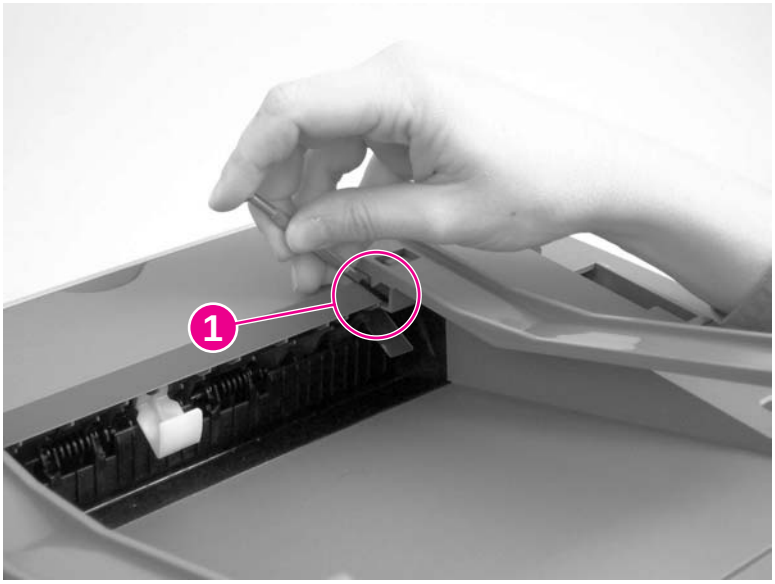

Figure 5-41. **Remove the height guides**

2. With the locking tab depressed, slide the height guide toward the front of the product, and then remove it.

Reinstallation tip

The height guides are marked with an **R** to indicate a right-side guide and an **L** to indicate a left-side guide.

Left-side door

1. Open the left-side door.

2. Remove the screw (callout 1) in the center of the door hinge.

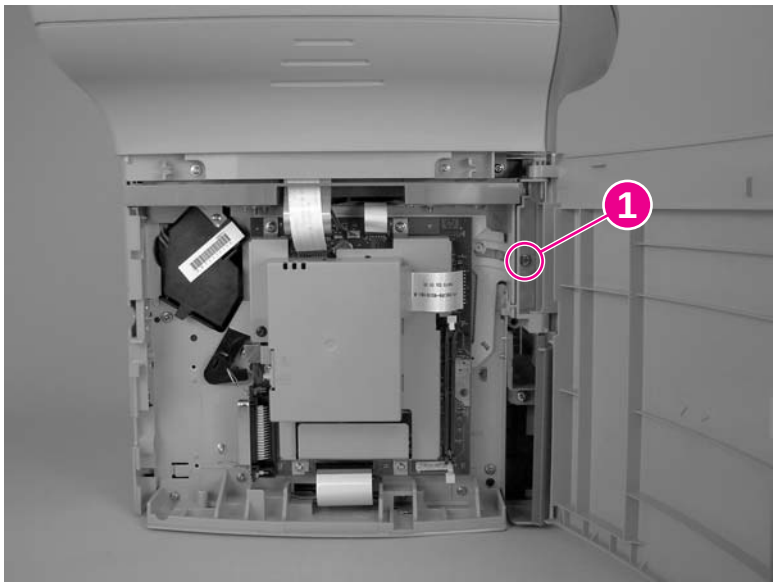

Figure 5-42. **Remove the left-side door**

3. Lift the door away.

Back cover

1. Remove the right-side cover (see Printer right-side cover), and open or remove the left-side door (see Left-side door).

Note

The back cover can be removed without removing the left-side door, but removing the back cover removes the support for the left-side door, which leaves it vulnerable to breakage.

2. Open the straight-through output door.

3. Remove two screws (callout 1).

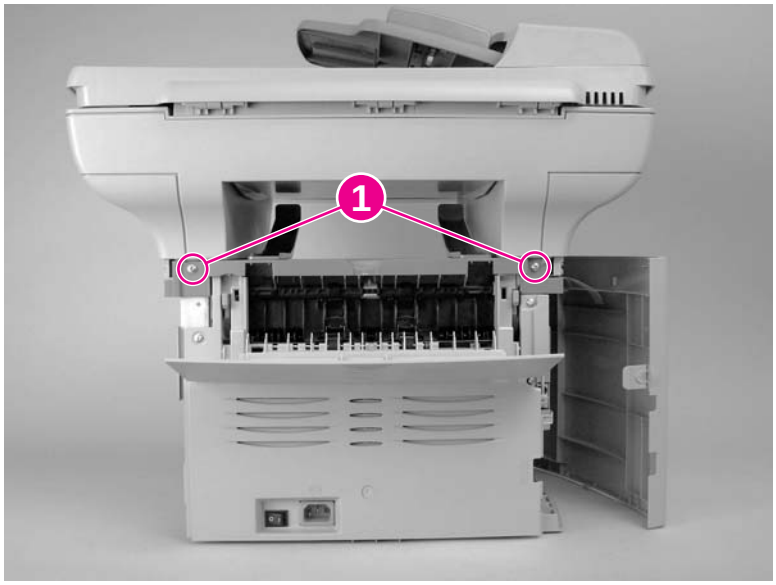

Figure 5-43. **Remove the back cover (1 of 2)**

Note

The back cover has two tabs (not shown): one on the side of the printer, and one on the bottom of the printer. You can use a screwdriver to press on the side tab.

4. Press down and hold the two fuser release levers (callout 2), and pull off the back cover.

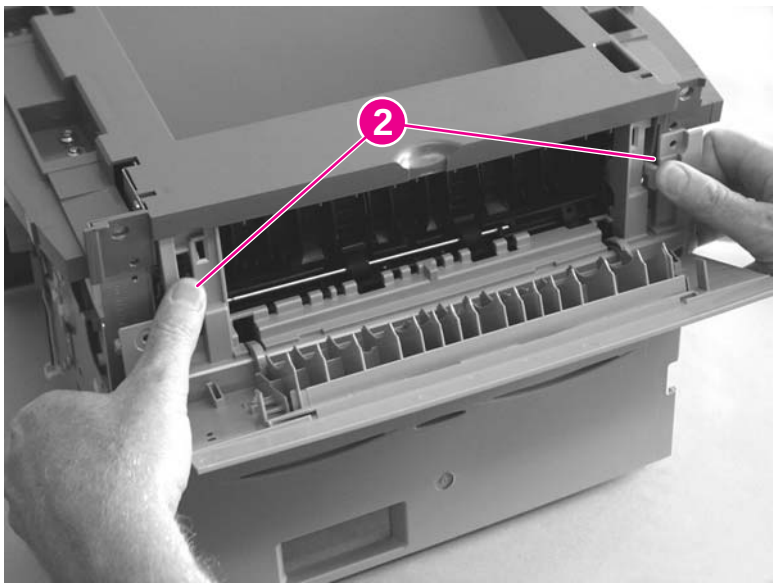

Figure 5-44. **Remove the back cover (2 of 2)**

Reinstallation tip

When reinstallilng the back cover, make sure that the two fuser release levers feed through the slots in the back cover.

Printer top cover

1. Separate the printer from the scanner (see Separation of the scanner from the printer). Remove the left-side door, right-side cover, and back cover (see External components), and open the print cartridge door.
2. Remove two screws on the sides of the printer (callout 1). Remove the four large screws on the top of the printer (callout 2), and then lift the cover off the printer.

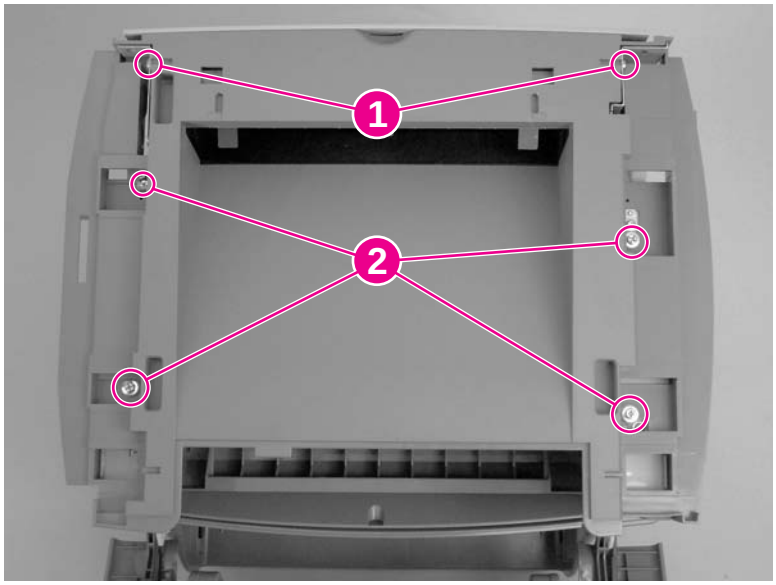

Figure 5-45. **Remove the printer top cover**

Front-cover assembly

The front-cover assembly is composed of three pieces:

- the print-cartridge door
- the front cover (the frame that surrounds the main input tray)
- the front guide assembly (the internal shelf that attaches the front cover and the print-cartridge door to the product)

Print-cartridge door

1. Open the print-cartridge door.

2. On both sides, pull the connecting links outward (callout 1) and disconnect them.

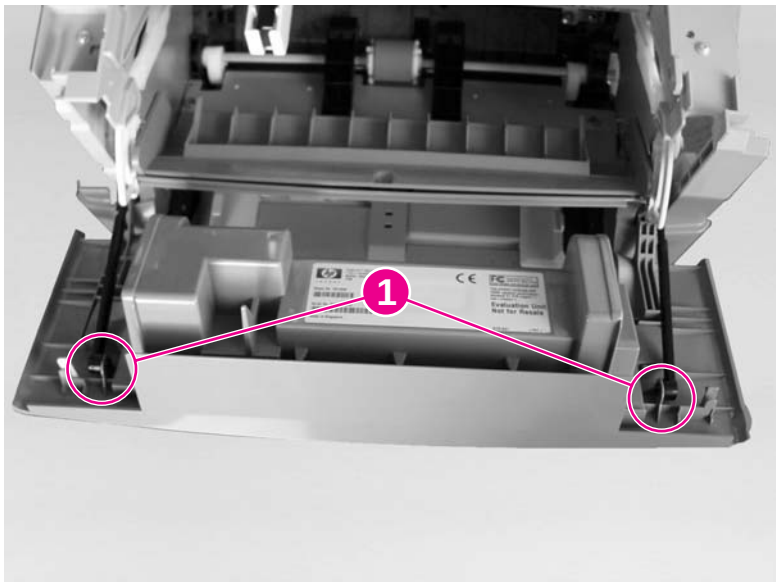

Figure 5-46. **Remove the print-cartridge door (1 of 2)**

CAUTION If the link arms fall back into or are pushed back into the printer when they are disconnected from the print-cartridge door, the interlocking mechanism might come apart and require reassembly. To avoid damage, disconnect the link arms from the print-cartridge mechanism and set them aside.

3. Detach the print-cartridge door hinge (callout 2) on the right side by *firmly* flexing the hinge arm to the right. Then rock the print-cartridge door to the left to remove it.

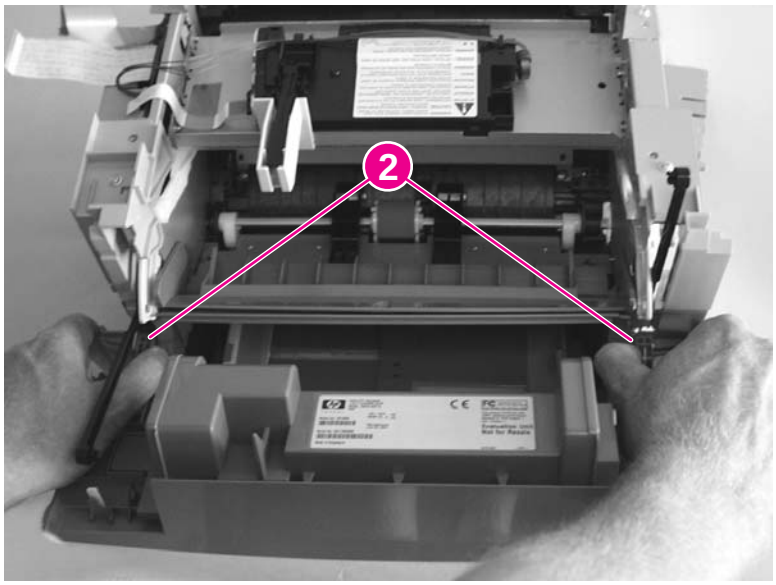

Figure 5-47. **Remove the print-cartridge door (2 of 2)**

Front cover

1. Remove the left-side door (see Left-side door), right-side cover (see Printer right-side cover), and print-cartridge door (see Print-cartridge door).

2. Loosen two screws (one shown, callout 1), one on each side of the cover.

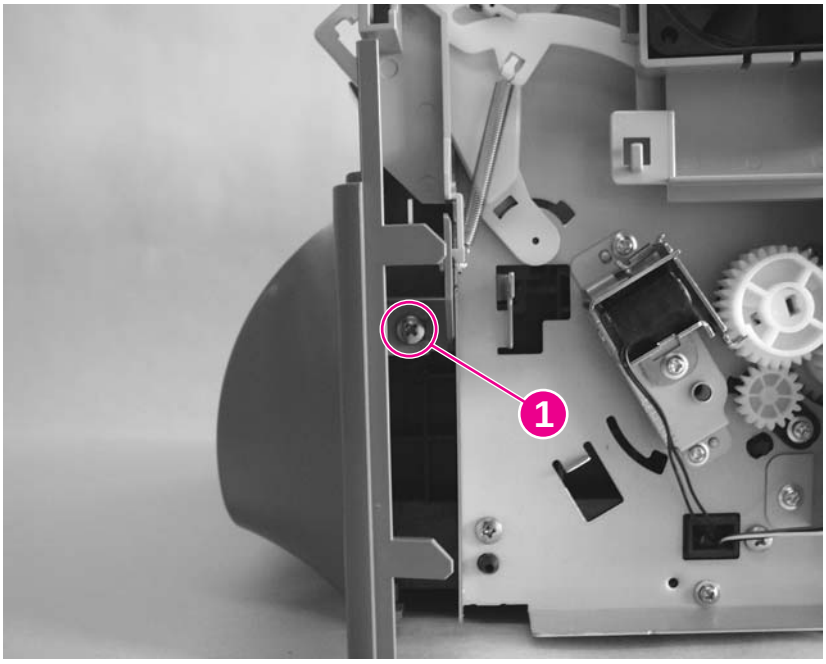

Figure 5-48. **Remove the front cover (1 of 2)**

3. Push down on both the top-center and bottom-center of the front cover at the same time until the top center tabs pop out of place. Keep pressure on the bottom-center of the panel to guard against breaking the tab.

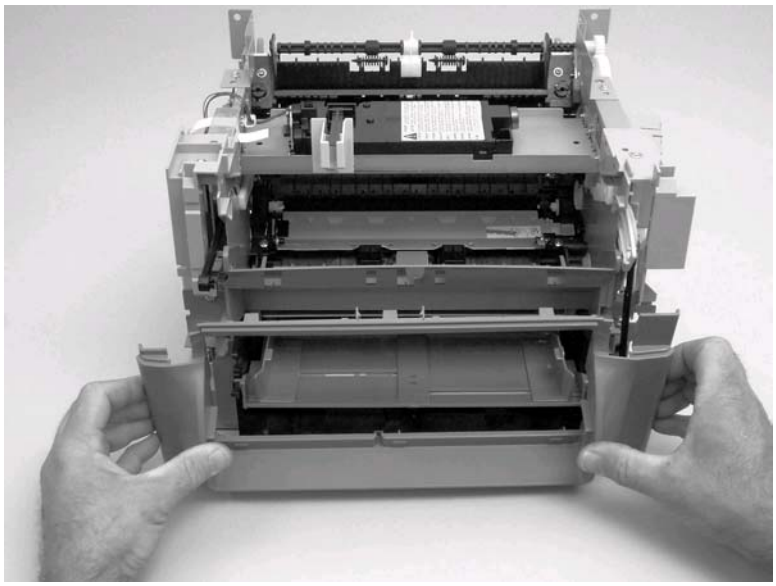

Figure 5-49. **Remove the front cover (2 of 2)**

4. Pull the panel forward just far enough to release the remaining tabs.
5. Rotate the bottom of the panel forward to remove it.

CAUTION When removing the front cover, be aware of all the tab locations to guard against breakage (callout 2).

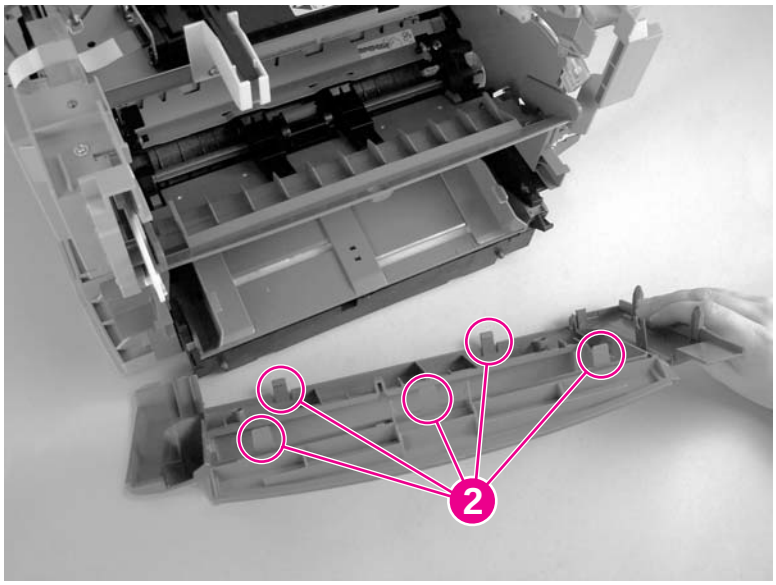

Figure 5-50. **Front cover removed**

Front guide assembly

1. Open the left-side door and remove the right cover (see Printer right-side cover), the print-cartridge door (see Print-cartridge door), and the front cover (see Front cover).
2. From the front of the printer, remove two screws (callout 1).

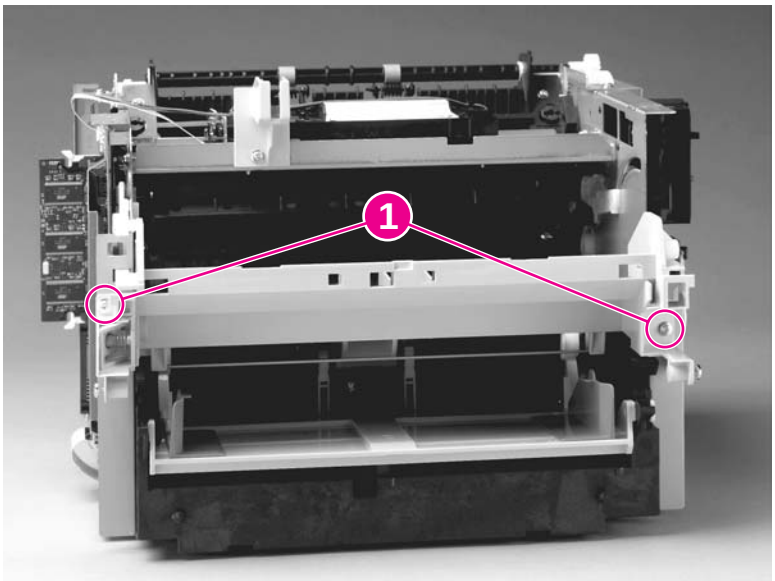

Figure 5-51. **Remove the front guide assembly (1 of 3)**

3. On the right side, release the upper tab (callout 2) and the lower tab (callout 3).

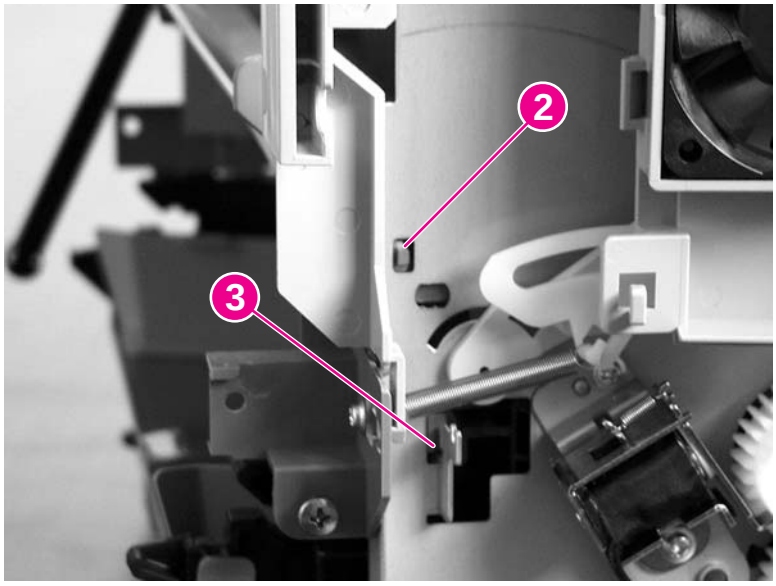

Figure 5-52. **Remove the front guide assembly (2 of 3)**

4. On the left side, release the upper tab (callout 2) and the lower tab (callout 3).
5. Remove the front guide assembly.

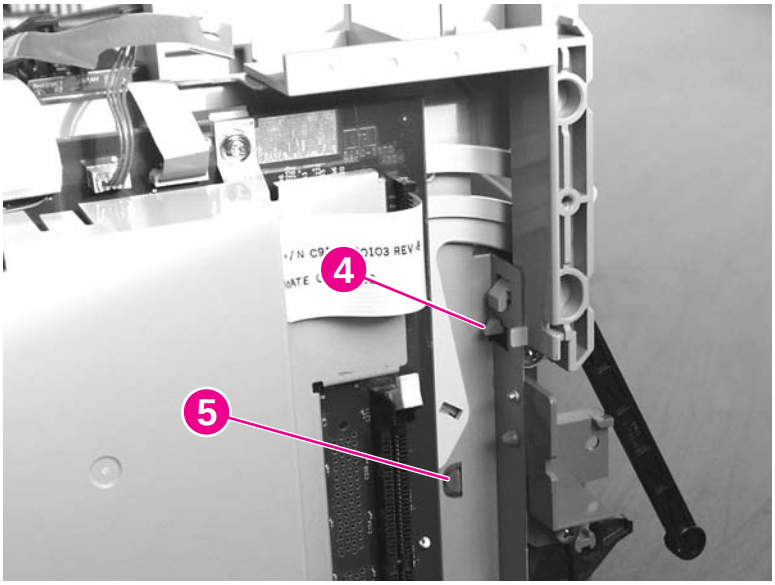

Figure 5-53. **Remove the front guide assembly (3 of 3)**

Printer assemblies

This section includes procedures to remove the major internal printer assemblies.

Laser/scanner assembly

1. Remove the printer top cover (see Printer top cover).
2. Remove one connector (callout 1), one FFC (callout 2), and four screws (callout 3).

CAUTION Do not bend or fold the FFCs during the removal or reinstallation process.

3. Remove the laser/scanner assembly.

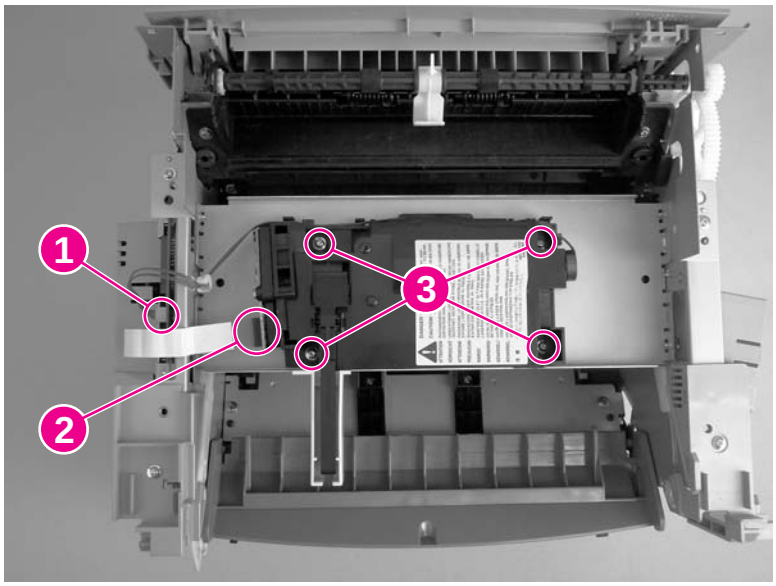

Figure 5-54. **Remove the laser/scanner assembly**

Height flapper

1. Remove the top cover (see Printer top cover).

2. Grasp the height flapper and gently pry it off of the face-down roller shaft.

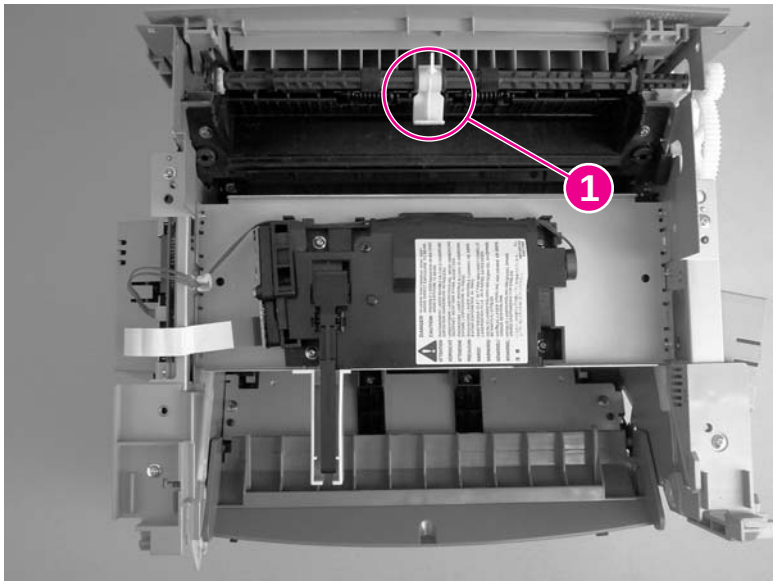

Figure 5-55. **Remove the height flapper**

Reinstallation tip

To install the height flapper, place the flat side down (into the printer) and firmly press down until it snaps over the center of the face-down roller shaft.

Left and right support covers (front corner brackets)

1. Remove the two screws holding the left support cover (callout 1) and one screw holding the right support cover (callout 2). Lift up the covers and rotate them toward the front to remove them.

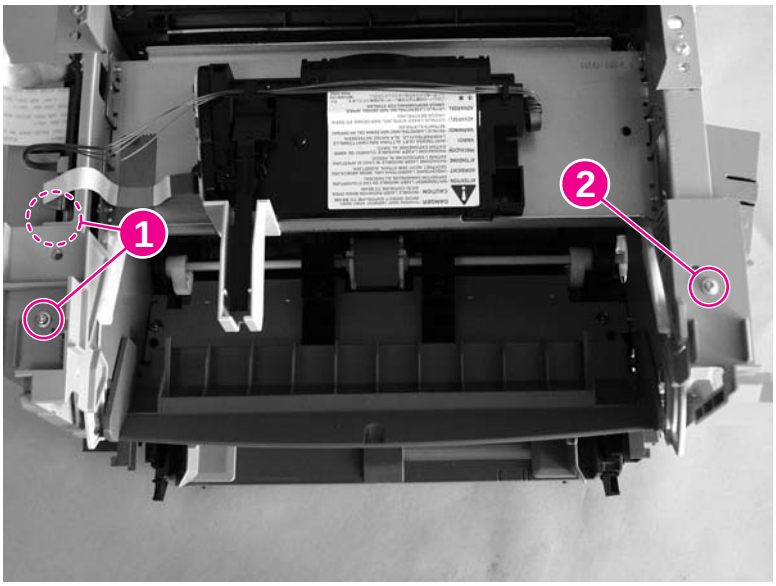

Figure 5-56. **Remove the left and right support covers**

Transfer upper guide assembly

Note It is not necessary to remove the front cover assembly. For clarity only, the front cover assembly is not shown in the following procedure.

1. Remove the printer top cover (see Printer top cover).
2. Remove two screws (callout 1).

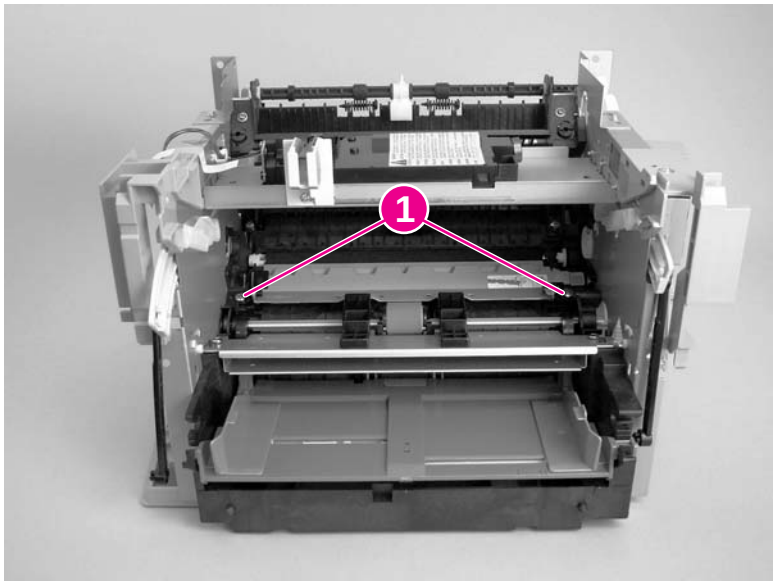

Figure 5-57. **Remove the transfer upper guide assembly**

CAUTION Do not touch the black-sponge portion of the transfer roller. Lay a piece of paper over the roller before working in this area.

3. Lift the transfer upper guide assembly up and out of the printer.

Reinstallation tip

When installing the transfer upper guide assembly, install the right-side of the guide first to prevent it from lifting up during installation and to ensure that the tip of the ESD grounding spring is properly seated.

Transfer roller

CAUTION Do not touch the black-sponge portion of the transfer roller. Lay a piece of paper over the roller before working in this area.

Note A small grounding spring is located underneath the right side of the transfer roller. Do not misplace this grounding spring.

1. Open the print-cartridge door, and remove the print cartridge (see Print cartridge).
2. Use needle-nose pliers to gently squeeze the two small tabs on the transfer roller.

3. Lift the transfer roller up, slide it to the right, and lift it out of the printer.

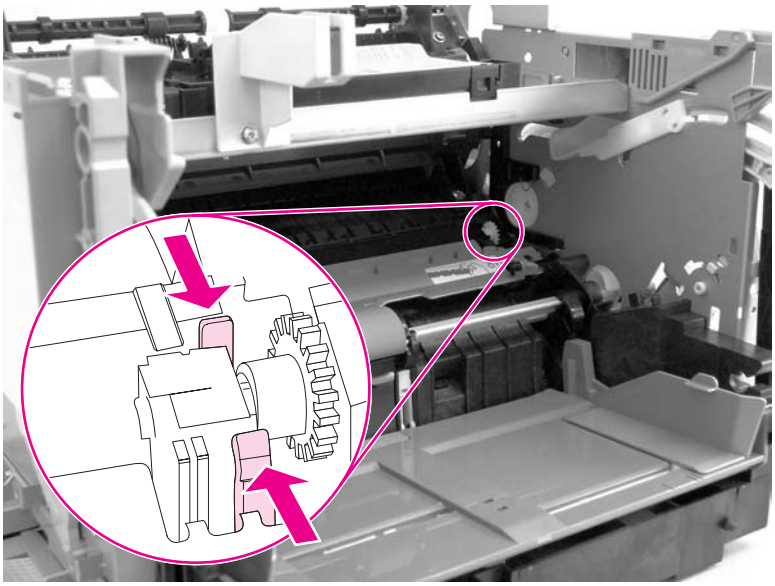

Figure 5-58. **Remove the transfer roller**

Line interface unit (LIU)

1. Open or remove the left-side door (see Left-side door).
2. Remove one screw (callout 1) at the left of the formatter board.
3. Disconnect the flat flexible cable (FFC) (callout 2) from the connector.

CAUTION Do not bend or fold the FFCs during the removal or reinstallation process.

4. Rotate the mounting-screw side of the LIU away from the formatter, and then disengage the mounting hook.

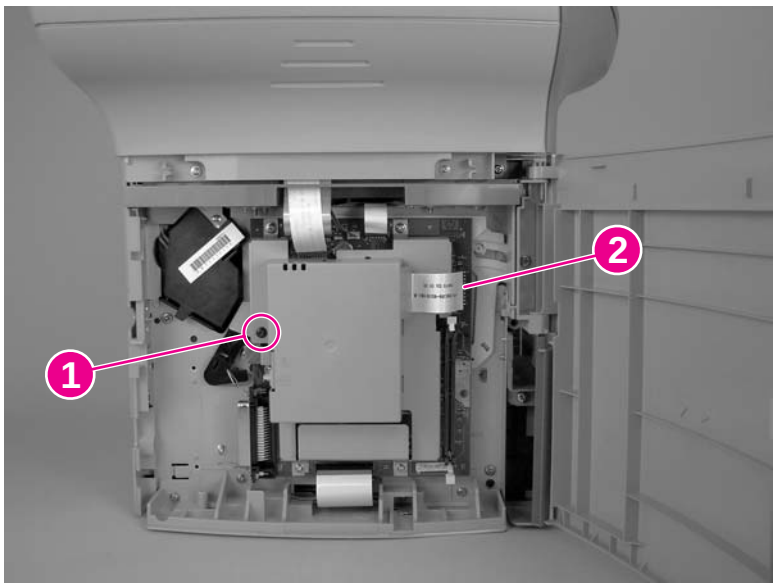

Figure 5-59. **Remove the LIU (1 of 2)**

5. To separate the LIU PCA from the cover, turn the LIU over, remove the screw (callout 3), and then pry the tabs open (callout 4). Slide the LIU PCA out of the cover.

Note Be careful not to misplace the LIU groundstrap (callout 5).

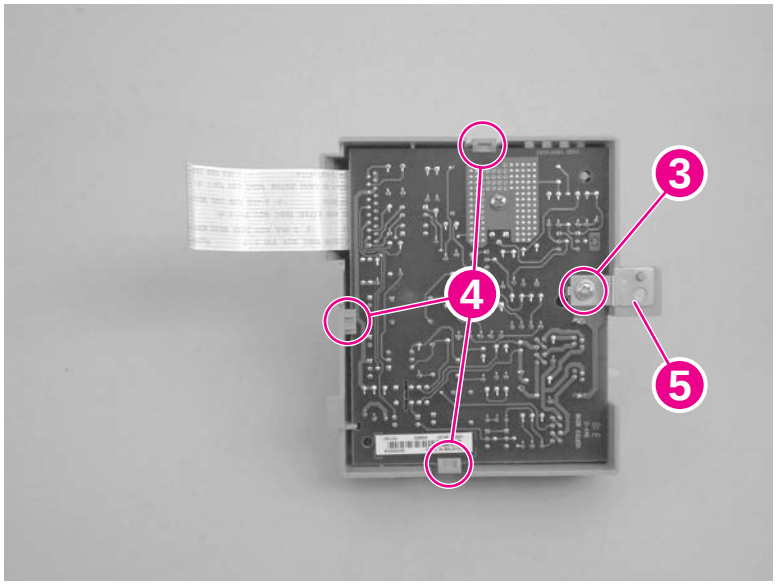

Figure 5-60. **Remove the LIU (2 of 2)**

Formatter

Note Removal of the LIU is not necessary to remove the formatter. However, it might make reinstallation easier.

1. Open or remove the left-side door (see Left-side door).

2. At the bottom of the formatter, disconnect the FFC (callout 1). Along the top of the formatter, disconnect the three FFCs and one wire connector (callout 2) .

CAUTION Do not bend or fold the FFCs during the removal or reinstallation process.

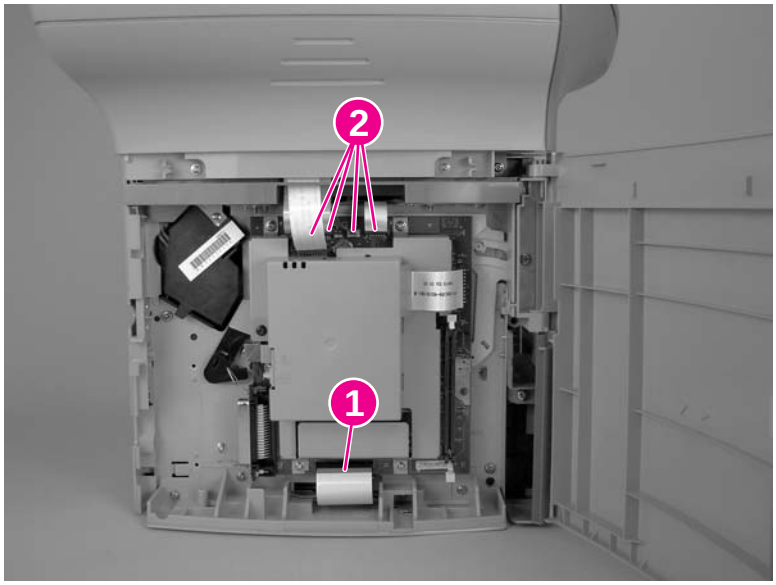

Figure 5-61. **Remove the formatter (1 of 3)**

3. Remove five screws (callout 3).

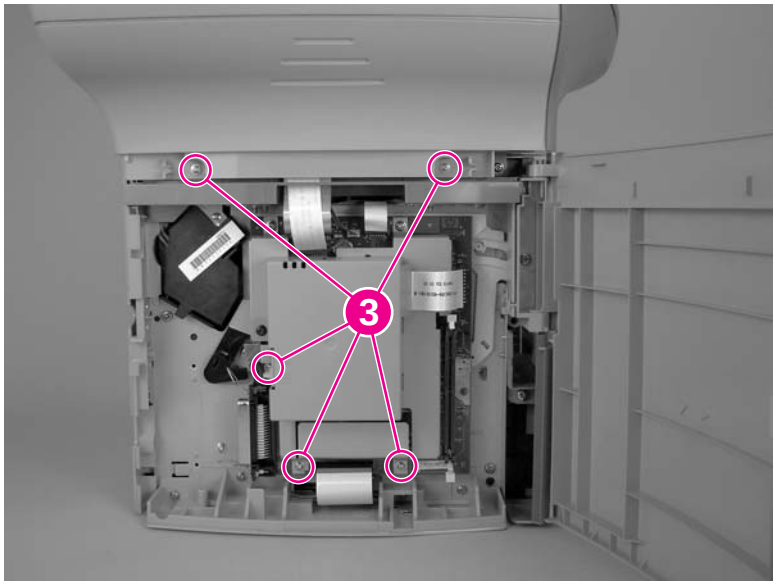

Figure 5-62. **Remove the formatter (2 of 3)**

4. Rotate the bottom of the formatter up and off of the hooks on the chassis and remove it.

Left bottom frame support

1. Open the left-side door.
2. Remove the formatter. See Formatter.

3. Remove three screws (callout 1).

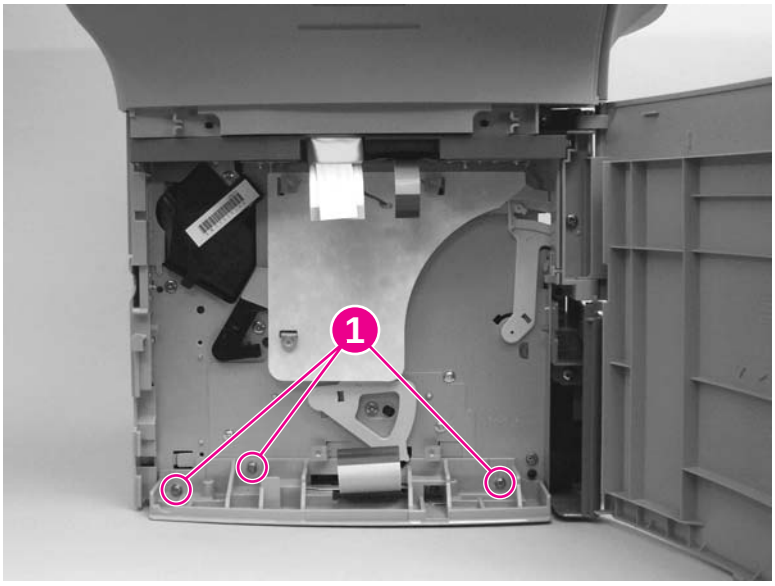

Figure 5-63. **Remove the left bottom frame support**

4. Remove the left bottom frame support.

Fuser assembly

1. Separate the scanner from the printer (see Separation of the scanner from the printer) and remove the left side door, back cover, and printer top cover (see Left-side door, Back cover, and Printer top cover).
2. Remove two screws (callout 1) from the right-side fuser support plate.

3. Remove a third screw (callout 2) from behind the large gear on the right-side fuser plate, and remove it.

Note

You can gain access to the third screw through the holes in the large, 69T gear. If you need to realign the 69T gear, you must first remove the pressure-roller gear. Release the tab (callout 3), and remove the pressure-roller gear.

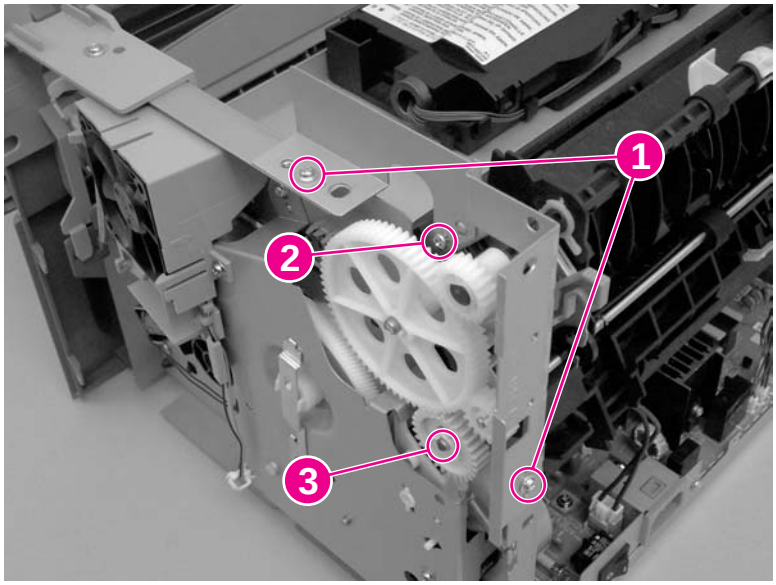

Figure 5-64. **Remove the fuser assembly (1 of 4)**

4. Remove three screws (callout 4) from the left-side fuser plate and remove it.

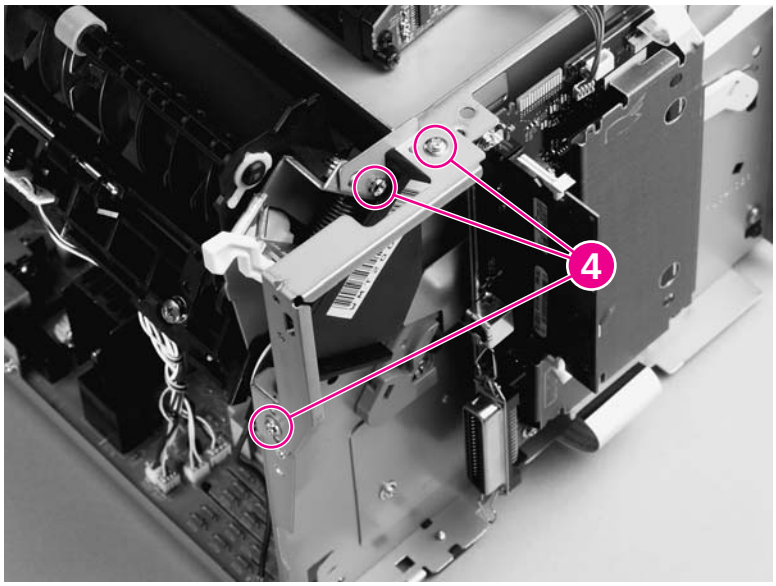

Figure 5-65. **Remove the fuser assembly (2 of 4)**

5. Remove two screws (one shown in callout 5), one from each side of the printer.

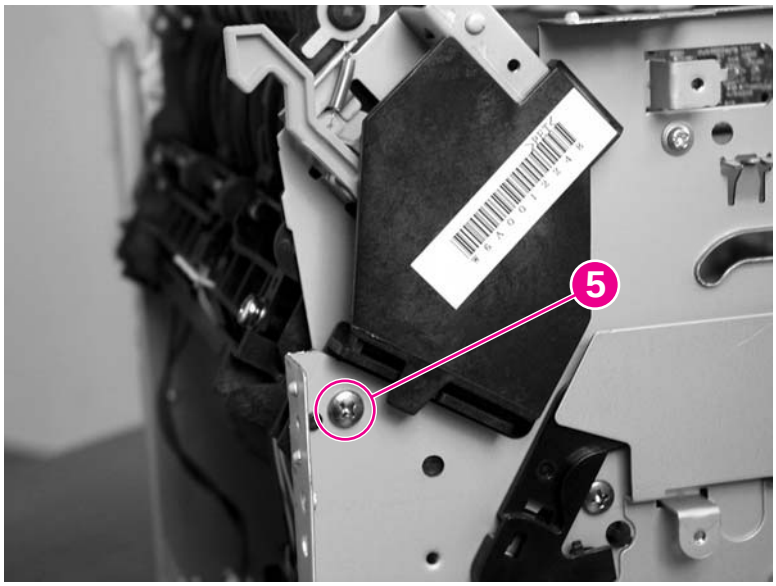

Figure 5-66. **Remove the fuser assembly (3 of 4)**

6. Unplug the fuser cable connector (callout 6) by pressing and releasing the tab on the back of the connector.
7. Remove one screw (callout 7) from the paper-delivery sensor, and lift out the paper-delivery sensor.

Note The paper-delivery sensor is included with a replacement fuser.

8. Unplug the spade connector (callout 8).
9. Unplug five smaller cable connectors (callout 9) from the ECU, and unwind the cables from the fuser assembly.

10. Pull the printer frame outward on both sides, and gently lift out the fuser assembly. The left and right fuser plates are detached when the fuser is removed.

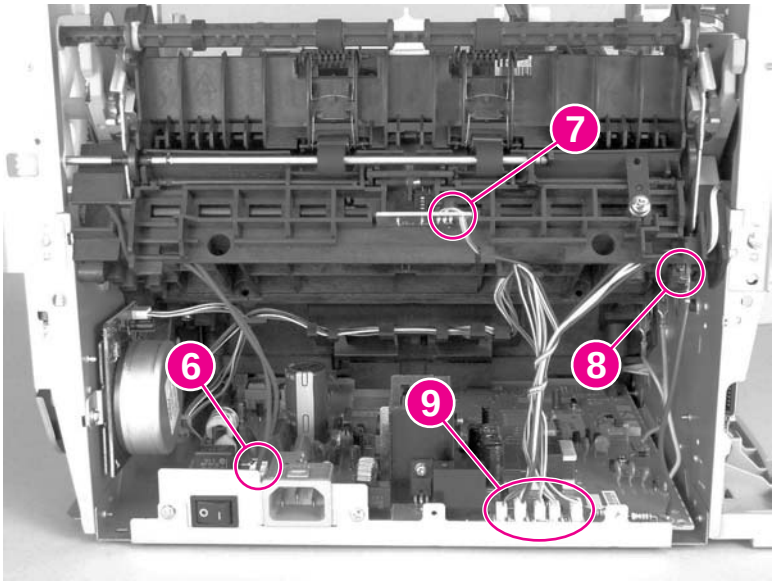

Figure 5-67. **Remove the fuser assembly (4 of 4)**

Reinstallation tip

Remove the large gear from the end of the fuser assembly, return the fuser assembly to the chassis, and replace the large gear.

Output rollers

The product has two output rollers:

- face-down delivery assembly
- face-up roller

Face-down delivery assembly (output roller)

1. Remove the fuser assembly (see Fuser assembly).

2. Remove two screws (callout 1) on the fuser, and lift the face-down delivery assembly away from the fuser assembly.

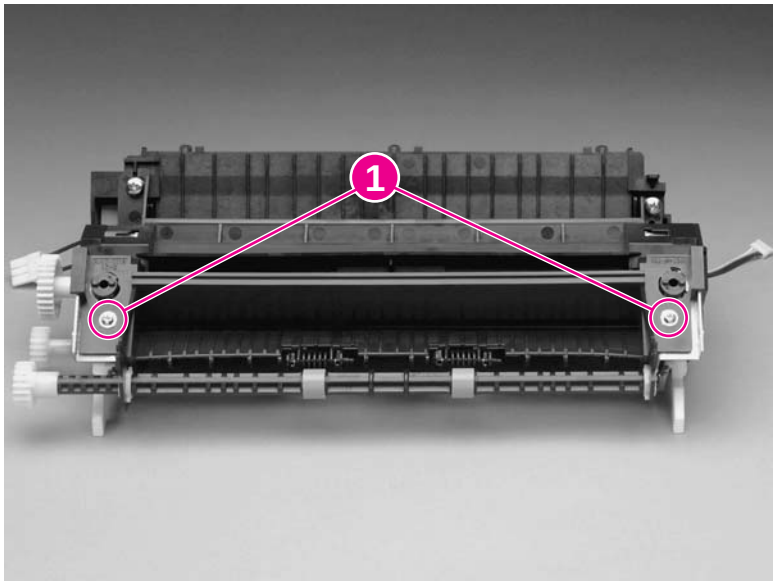

Figure 5-68. **Remove the output rollers (1 of 2)**

Face-up roller (output roller)

1. Turn the fuser assembly over.
2. Remove the gear (callout 1) from the face-up roller, and release the tab (callout 2) on the face-up roller bushing.
3. Rotate the face-up roller bushing forward until the pin releases.
4. Slide the face-up roller away from the gear side, and lift it out of the fuser assembly.

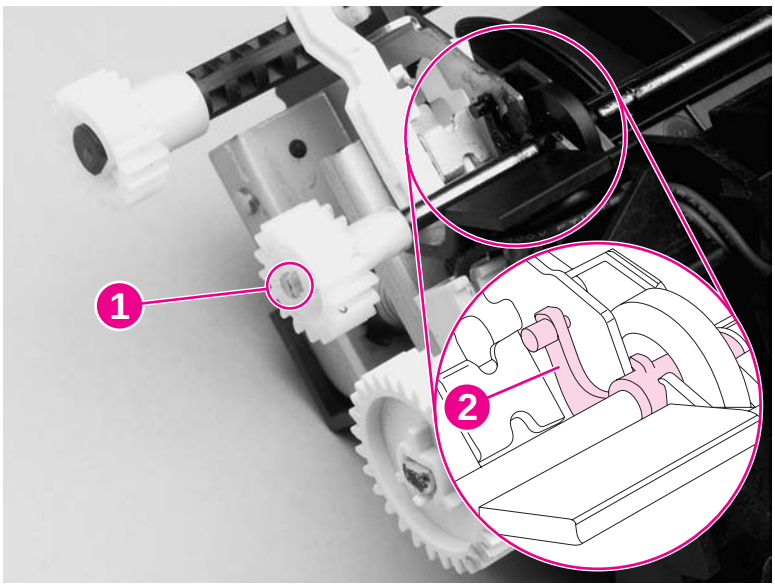

Figure 5-69. **Remove the output rollers (2 of 2)**

Reinstallation tip

Flex the face-up roller bushing to pop the pin into place.

Stepping motor

1. Remove the back cover (see Back cover).
2. Disconnect the motor cable connector (callout 1) on the side of the motor.
3. Remove the three screws (callout 2) from the motor and then remove the motor.

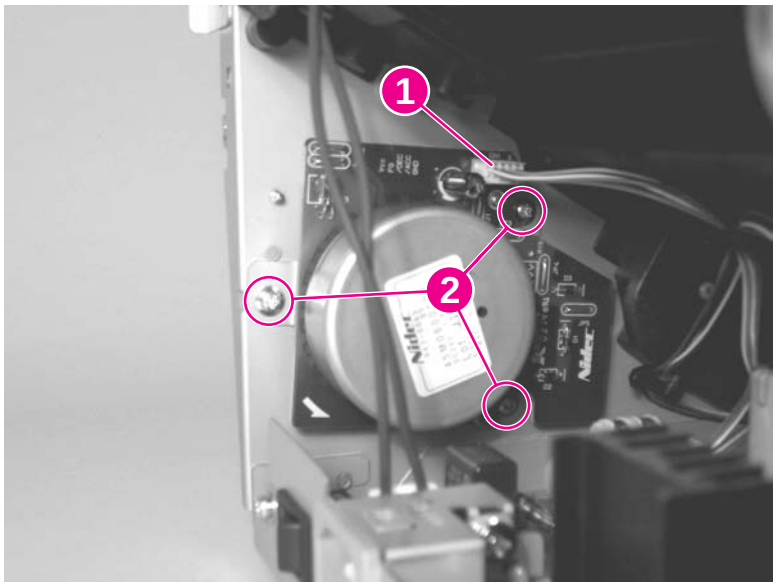

Figure 5-70. **Remove the stepping motor**

Solenoid

1. Separate the scanner from the printer (see Separation of the scanner from the printer), and remove the left-side door and back cover (see Left-side door and Back cover).
2. Unplug five cable connectors (callout 1) from the ECU, and unwind the bundle of cables.
3. Carefully unwind the cables from the cable guides (callout 2).

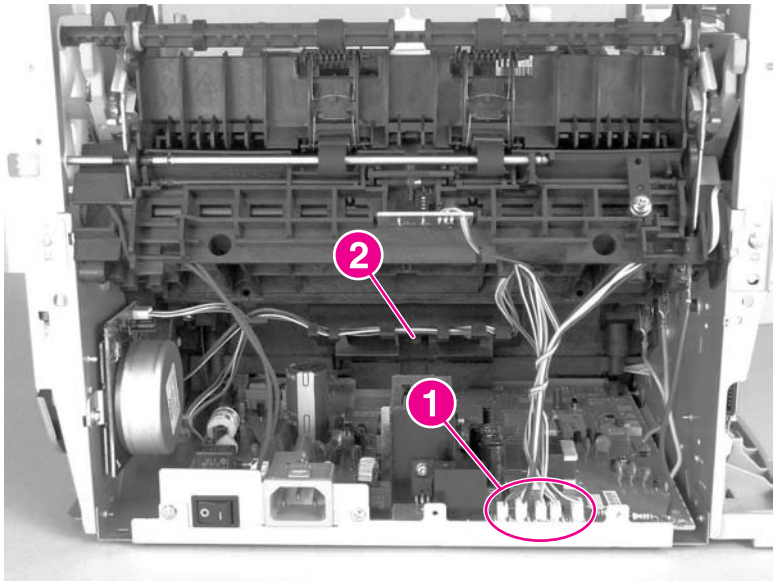

Figure 5-71. **Remove the solenoid (1 of 2)**

4. Remove the screw (callout 3) on the solenoid.
5. Gently thread the solenoid cable through the hole (callout 4) in the right-side plate.
6. Lift off the solenoid.

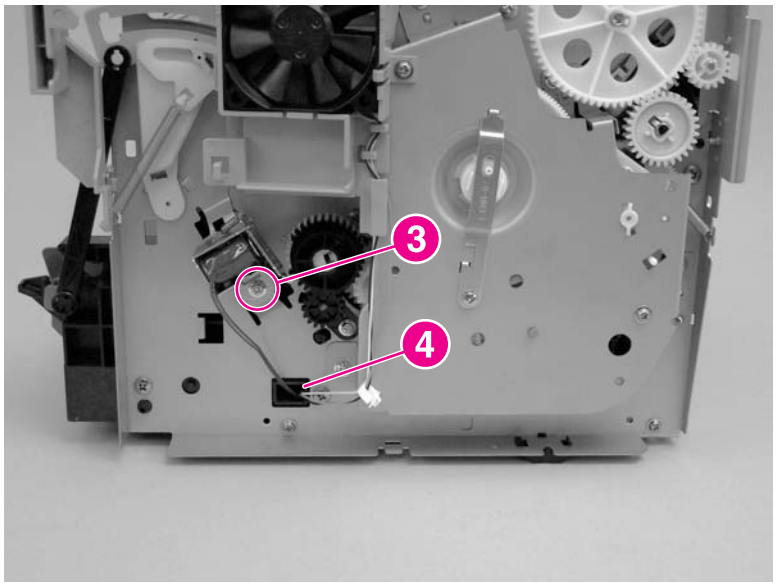

Figure 5-72. **Remove the solenoid (2 of 2)**

Reinstallation tip

If you have trouble rerouting the cables through the hole (callout 2) in the right-side plate, remove the ECU pan (see ECU fuses and ECU pan) before rerouting the cables through the hole.

Fan assembly

1. Separate the scanner from the printer (see Separation of the scanner from the printer) and remove the left-side door and back cover (see Left-side door and Back cover).
2. Unplug the five cable connectors (callout 1) from the ECU, and unwind the bundle of cables.

3. Carefully unwind the cables from the cable guides (callout 2).

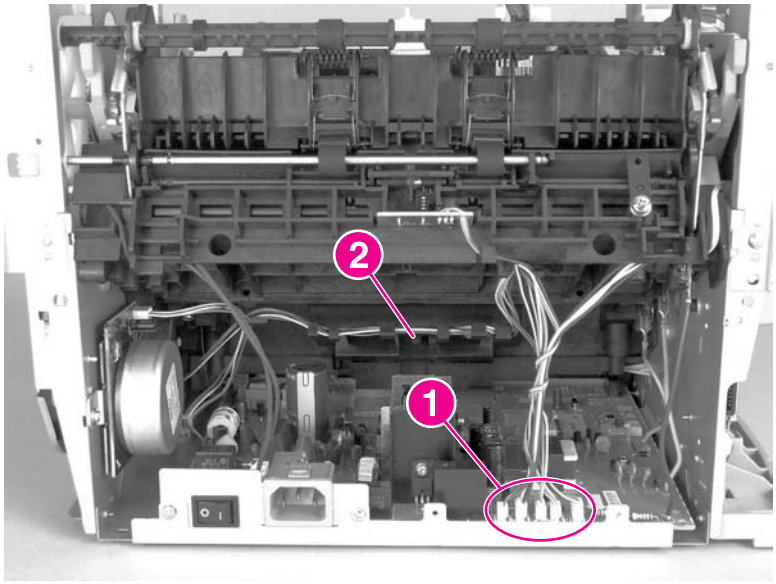

Figure 5-73. **Remove the fan (1 of 2)**

4. Remove two screws (callout 3).
5. Remove the fan assembly.
6. Gently thread the fan cable through the hole (callout 4) in the right-side plate.
7. Remove the fan assembly.

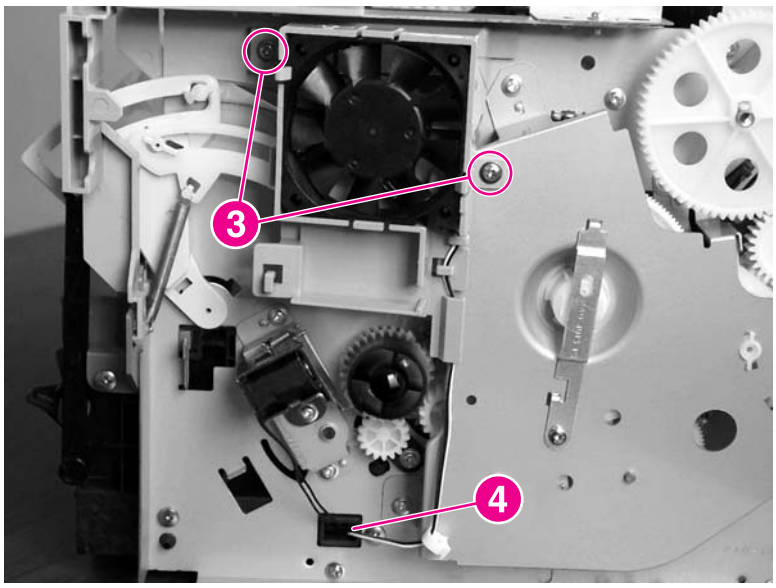

Figure 5-74. **Remove the fan (2 of 2)**

Reinstallation tip

If you have trouble rerouting the cables through the hole (callout 4) in the right-side plate, remove the ECU pan (see ECU fuses and ECU pan) before rerouting the cables through the hole.

Pickup assembly

1. Remove the right-side cover, print-cartridge door, front cover, front-guide assembly, and formatter (see Printer right-side cover, Front-cover assembly, Front guide assembly, and Formatter).
2. Remove one screw (callout 1).

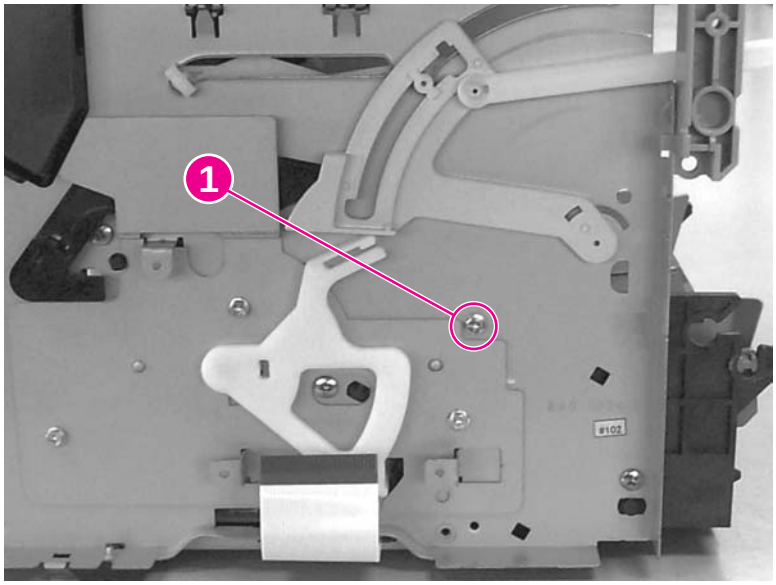

Figure 5-75. **Remove the pickup assembly (1 of 3)**

3. Remove two screws (callout 2) on the top of the upper metal shield.

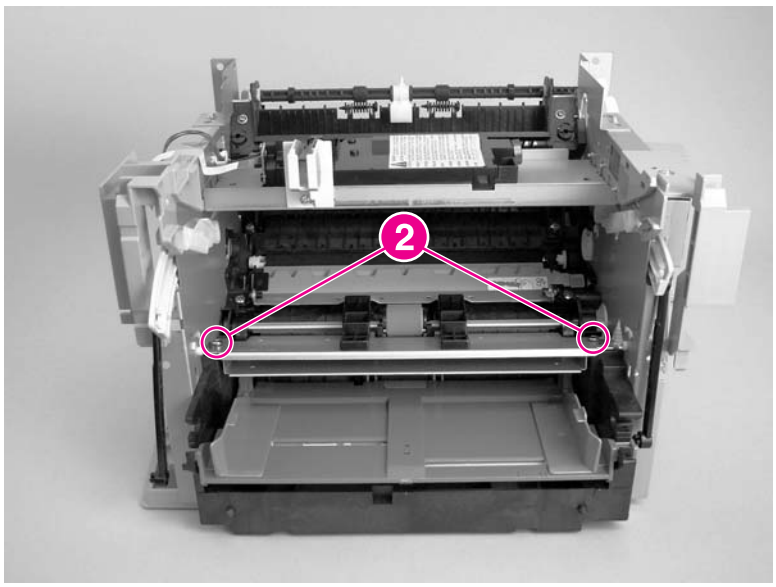

Figure 5-76. **Remove the pickup assembly (2 of 3)**

4. Lift the upper metal shield (callout 3) straight up, and remove it.

5. Lift the lower metal shield (callout 4) straight up, and remove it.

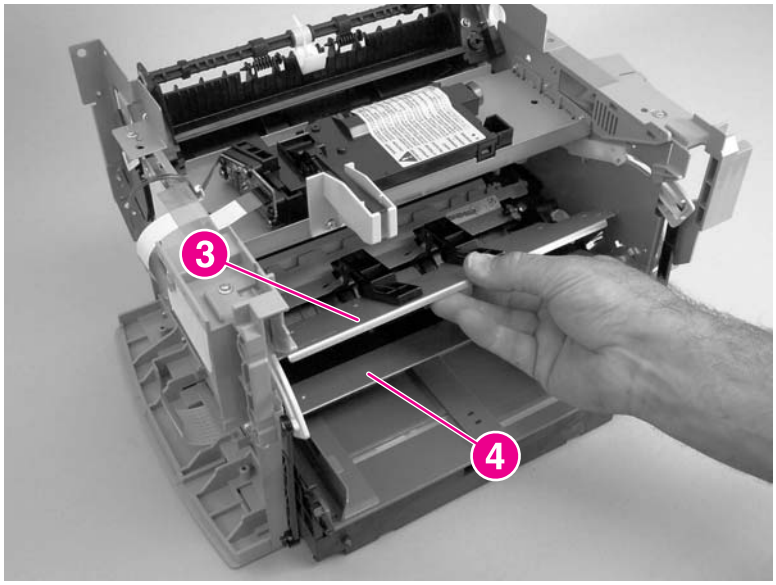

Figure 5-77. **Remove the pickup assembly (3 of 3)**

Paper lift-plate assembly and pickup roller shaft

1. Remove the front cover, print-cartridge door, and front guide assembly (see Front-cover assembly, Print-cartridge door, and Front guide assembly).
2. Remove the pickup assembly (see Pickup assembly).

3. Remove the solenoid clutch gears (callout 1) by releasing the locking tab inside of the printer (callout 2) and sliding the gears off of the shaft and away from the left side of the product.

CAUTION The solenoid clutch gear assembly is made up of two gears with a small compression spring between them. *Do not* separate these gears when removing them or you might lose the spring.

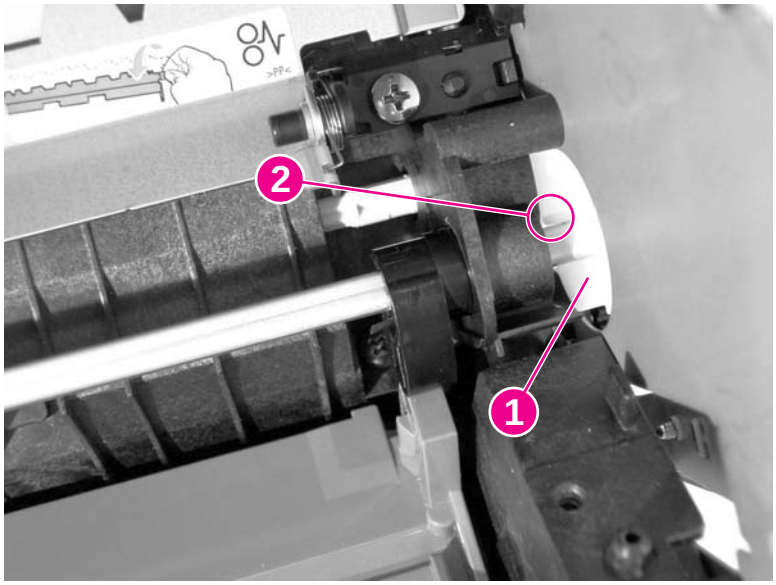

Figure 5-78. **Remove the paper lift-plate assembly (1 of 4)**

4. Release the locking tab (callout 3) on the pickup-roller shaft and slide the shaft toward the right until the left end releases.

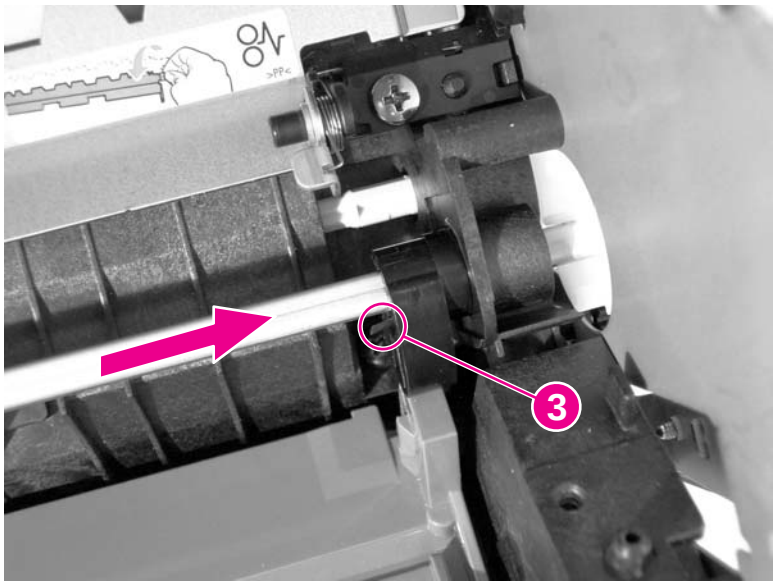

Figure 5-79. **Remove the paper lift-plate assembly (2 of 4)**

5. Carefully angle the left end of the shaft toward the back of the product.

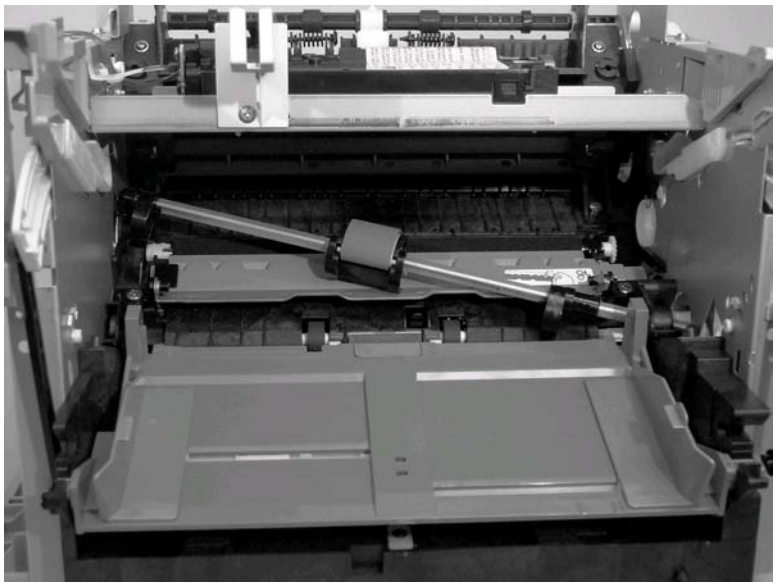

Figure 5-80. **Remove the paper lift-plate assembly (3 of 4)**

6. Flip up the paper lift-plate and lift it straight up to remove it.

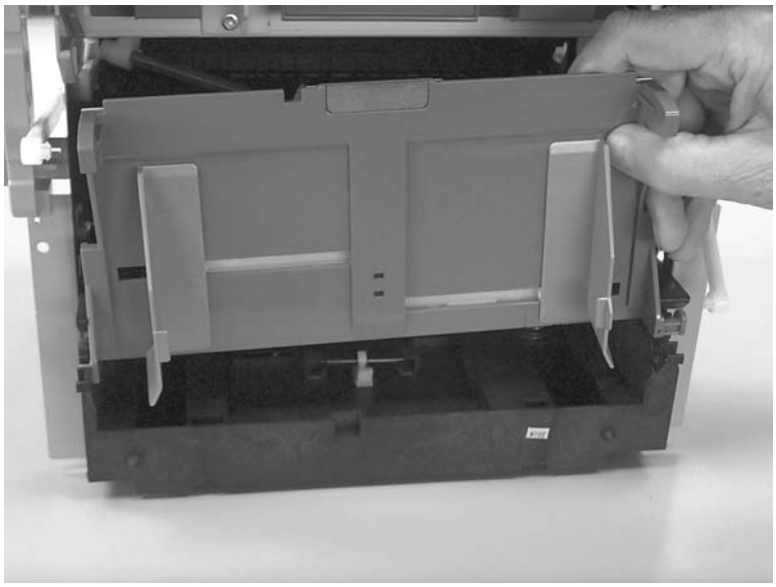

Figure 5-81. **Remove the paper lift-plate assembly (4 of 4)**

7. If you want to remove the pickup roller shaft, carefully angle the left side outward.

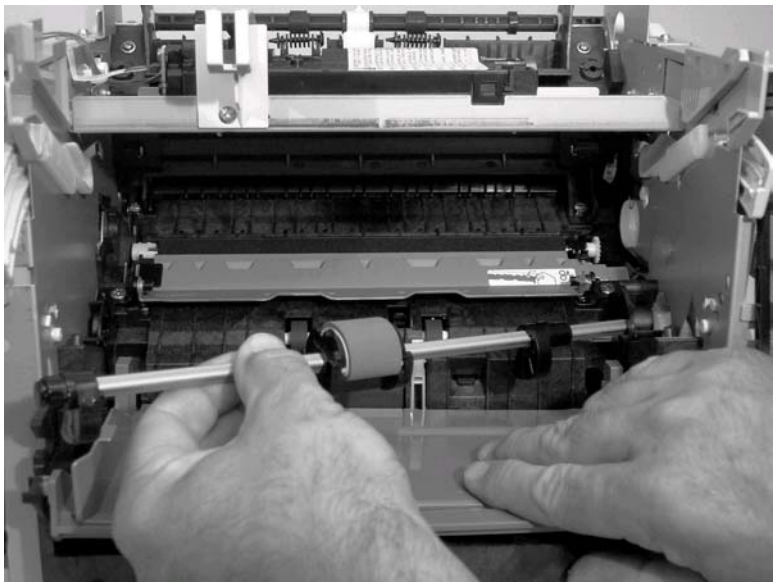

Figure 5-82. **Remove the pickup roller shaft**

Reinstallation tip

Be sure that the clutch on the pickup roller shaft is aligned with the follower (the large plastic tab) on the paper lift-plate.

To reinstall the paper lift-plate assembly

Make sure that the vertical paper sensor (the narrow, black, plastic piece to the left of the separation-pad arm) is in an upright position. Also, make sure that the two springs are correctly positioned under the plate. The springs rest under the lift-plate and encircle the metal tabs shown in the picture (callouts 1 and 2).

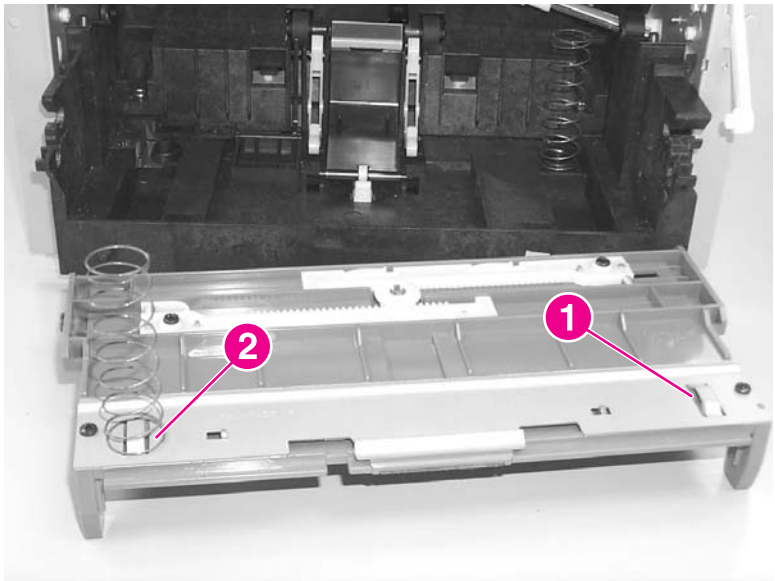

Figure 5-83. **Paper lift-plate springs**

Right plate assembly

1. Separate the scanner from the printer (see Separation of the scanner from the printer), and remove the left-side door and back cover (see Left-side door and Back cover).
2. Remove the front cover, print-cartridge door, and front guide assembly (see Front-cover assembly, Print-cartridge door, and Front guide assembly).
3. Remove the solenoid (see Solenoid).
4. Remove the fan assembly (see Fan assembly).
5. Use a small, flat-blade screwdriver to release the locking tab inside of the printer, and slide the solenoid clutch gears off of the shaft and away from the left side of the product.

CAUTION The solenoid-clutch-gear assembly is made up of two gears with a small compression spring between them. *Do not* separate these gears when removing them or you might lose the spring.

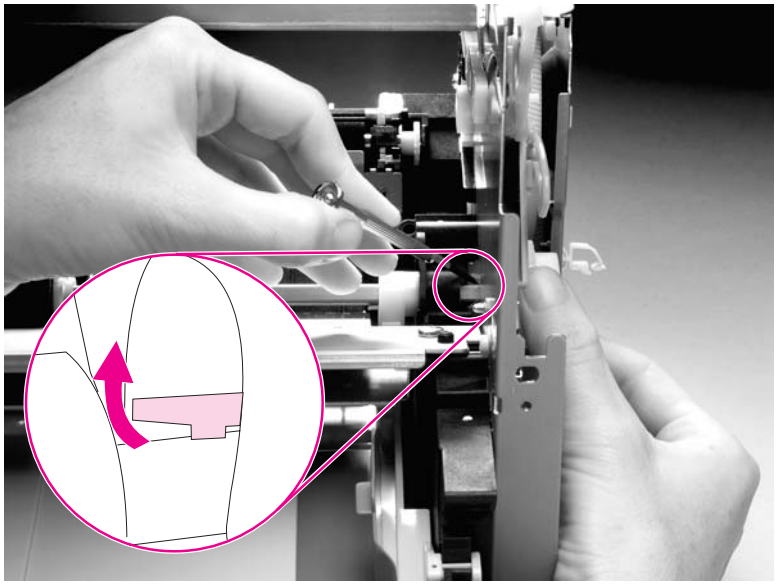

Figure 5-84. **Remove the right plate assembly (1 of 2)**

6. Remove seven screws (callout 1).

Note If you have not already removed the fuser, remove the fuser screw and the largest gear on the fuser (these are already removed in the photo), and remove the 69T gear (callout 2).

7. Remove the right plate assembly.

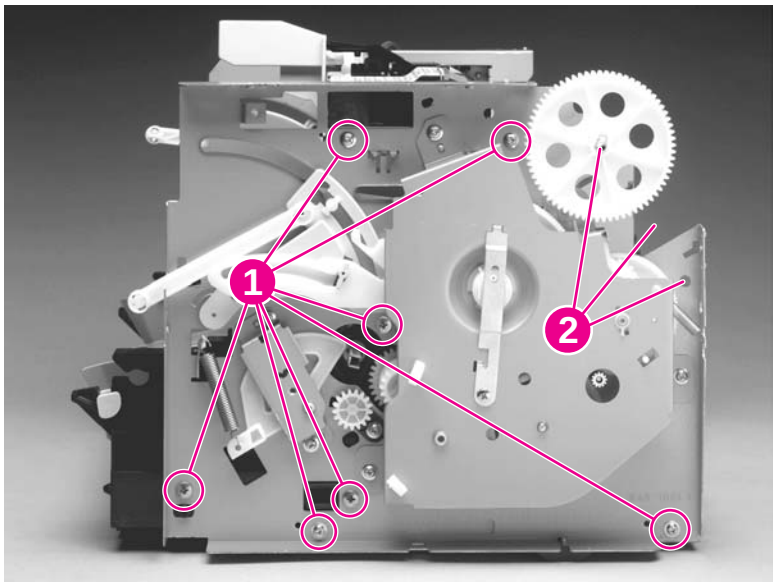

Figure 5-85. **Remove the right plate assembly (2 of 2)**

Left plate assembly

1. Separate the scanner from the printer (see Separation of the scanner from the printer), and remove the left-side door and back cover (see Left-side door and Back cover).
2. Remove the front cover, the print-cartridge door, and the front guide assembly (see pages Front-cover assembly, Print-cartridge door, and Front guide assembly).
3. Remove the formatter and the deflector shield (callout 1). (To remove the deflector shield, slip it off of the tabs after removing the formatter. See Formatter.)

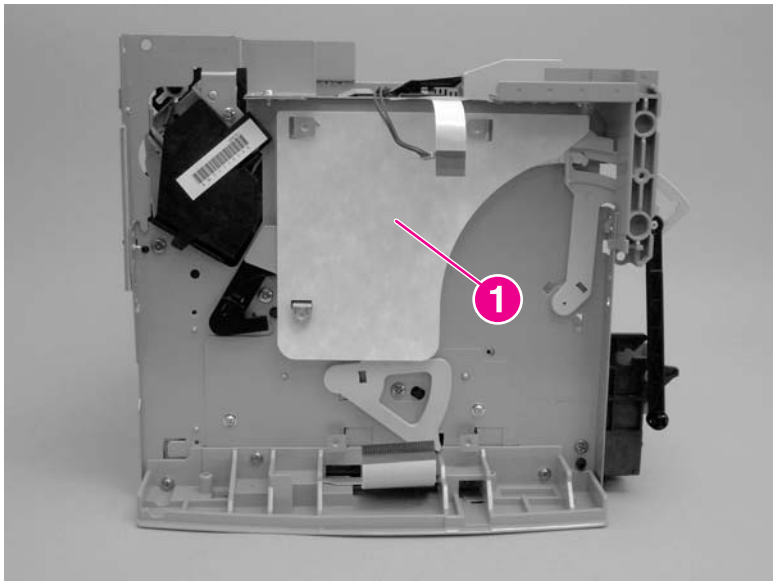

Figure 5-86. **Remove the left plate assembly (1 of 2)**

4. Remove six screws (callout 2). If you have not already removed the fuser, remove the fuser screw (callout 3).

5. Remove the left plate assembly.

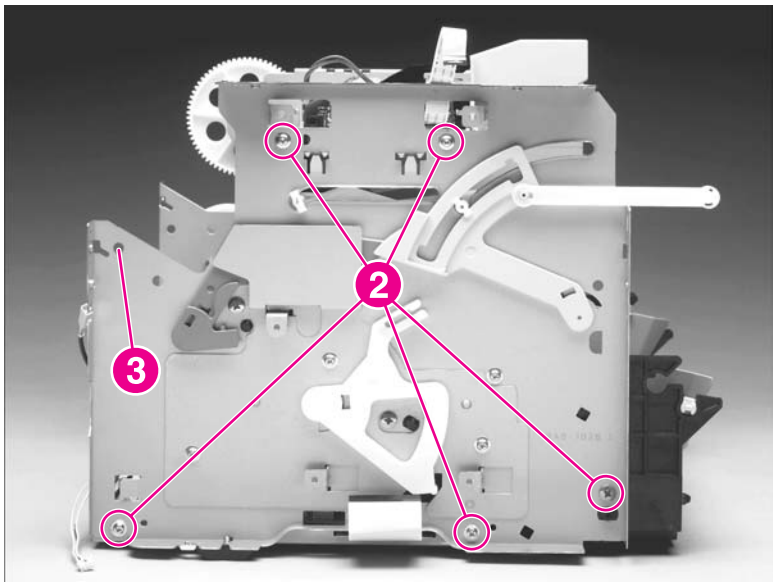

Figure 5-87. **Remove the left plate assembly (2 of 2)**

Bottom assemblies

This section includes procedures to remove the ECU fuses, the ECU pan, and the paper-feed assembly.

ECU fuses and ECU pan

1. Remove the right-side cover and the back cover (see Printer right-side cover and Back cover).

Note

By removing these two covers, you can replace the two fuses (if necessary) on the ECU without removing the ECU pan. The fuse closest to the back of the product is 10 amps for the 110 V model and 20 amps for the 220 V model. The other fuse is 2.5 amps for both models. (The fuses are shown in callout 12 in Figure 5-92. Remove the ECU pan (5 of 5).)

2. Remove the left bottom frame support (see Left bottom frame support).
3. Unplug the three spade connectors (callout 1).
4. Disconnect the motor cable connector (callout 2) on the side of the motor.
5. Unplug the fuser cable connector (callout 3) by pressing and releasing the tab on the back of the connector.
6. Unplug five cable connectors (callout 4) from the ECU.

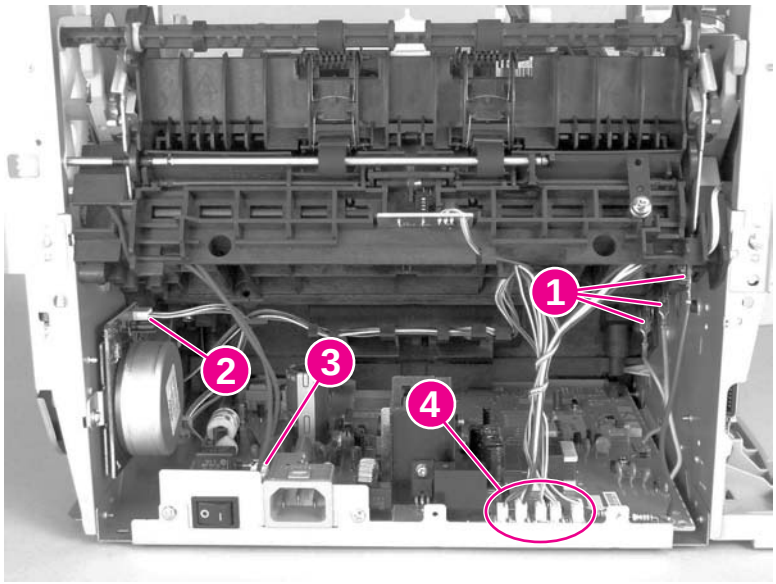

Figure 5-88. Remove the ECU pan (1 of 5)

7. Disconnect the FFC from the formatter (callout 5). Remove one screw (callout 6) on the left side of the printer.

CAUTION Do not bend or fold the FFCs during the removal or reinstallation process.

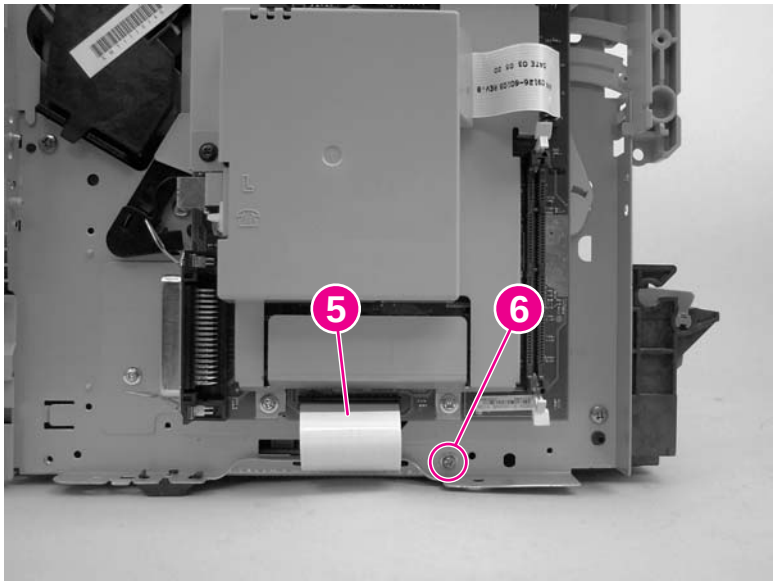

Figure 5-89. **Remove the ECU pan (2 of 5)**

8. Remove two screws (callout 7) on the right side of the printer.

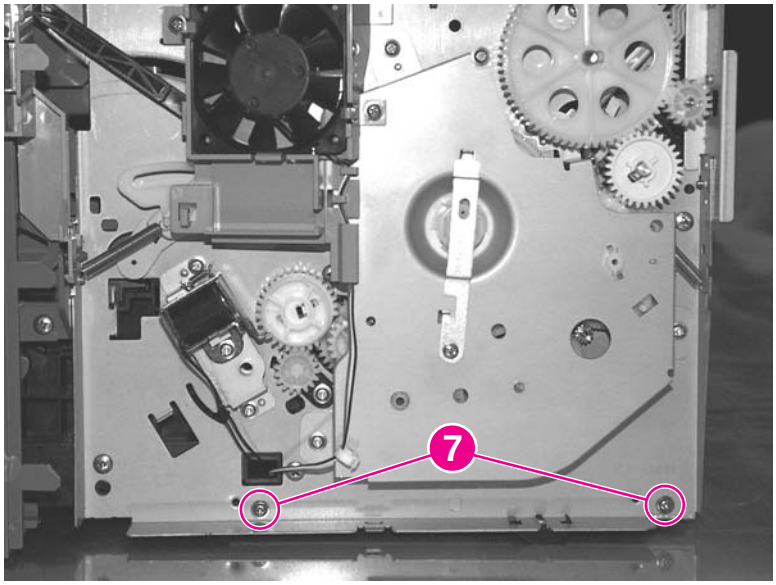

Figure 5-90. **Remove the ECU pan (3 of 5)**

9. Gently lift the ECU pan in the printer and slide it backward to free it from the pins on the inside of the printer (callout 8).

Note

The entire ECU board can be replaced as a single unit. (Only the soldered cables ship with the replacement board; if other cables are damaged during removal, you will have to purchase new ones.)

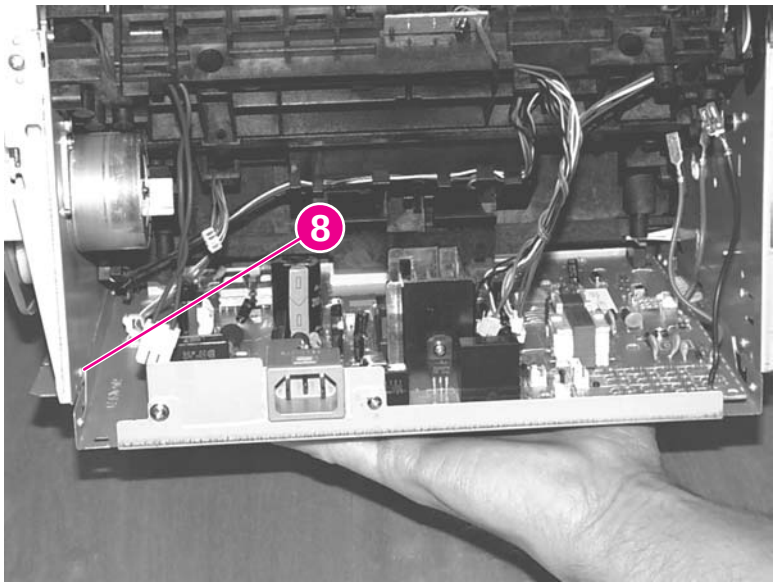

Figure 5-91. **Remove the ECU pan (4 of 5)**

10. Remove three screws (callout 9).
11. Disconnect the wire from the connector (callout 10).
12. Remove the two screws (callout 11) on either side of the power connection.

13. Lift the ECU out of the ECU pan.

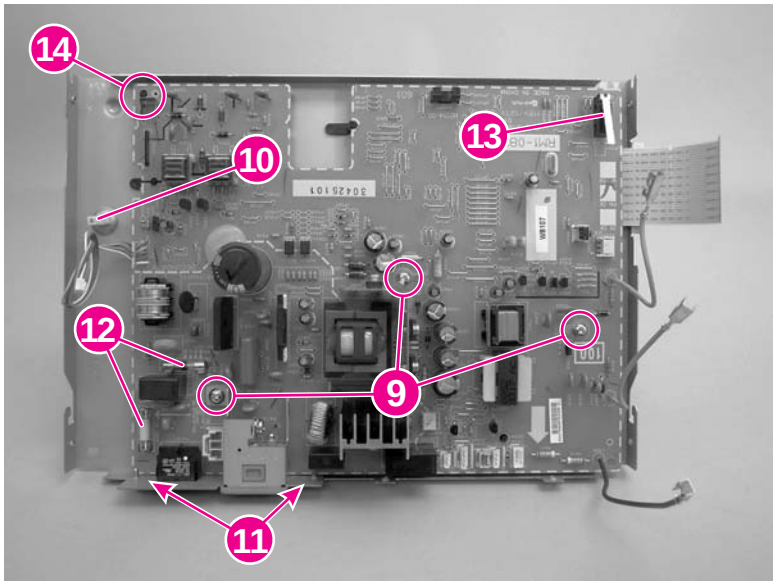

Figure 5-92. **Remove the ECU pan (5 of 5)**

Note

Callout 12 in Figure 5-92. Remove the ECU pan (5 of 5) shows the two fuses on the ECU. The fuse closest to the back of the product is 10 amps for the 110 V model and 20 amps for the 220 V model. The other fuse is 2.5 amps for both models.

Reinstallation tip

Slide the ECU into the product from front to back to ensure that the microswitch (callout 13) is *under*, not behind, the plastic lever that protrudes into the ECU area from the formatter-side of the product. Sliding the ECU into the product from front to back also ensures that the post in callout 14 contacts the grounding spring in the engine.

Paper-feed assembly

1. Separate the scanner from the printer (see Separation of the scanner from the printer), and remove the left-side door and back cover (see Left-side door and Back cover).
2. Remove the right plate assembly (see Right plate assembly).
3. Remove the ECU pan (see ECU fuses and ECU pan).
4. Unwind the fan and solenoid cables from the cable guides (callout 1) on the paper-feed mechanism.
5. Remove two screws (callout 2) from the paper-feed mechanism.

6. Remove one screw (callout 3) from the paper-sensor PCB assembly.

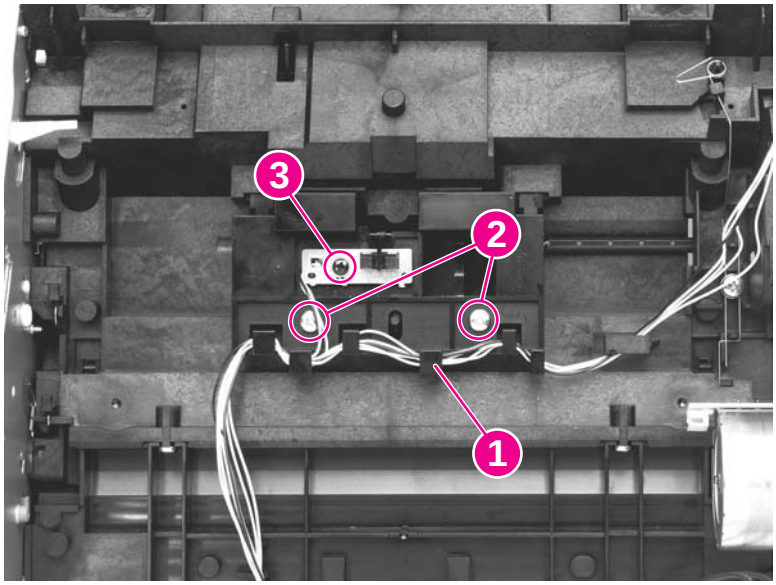

Figure 5-93. **Remove the paper-feed assembly (1 of 4)**

7. Separate two bushings (on the bottom of the paper-feed mechanism) from the paper-feed roller shaft (callout 4), and lift the paper-feed mechanism up and out.

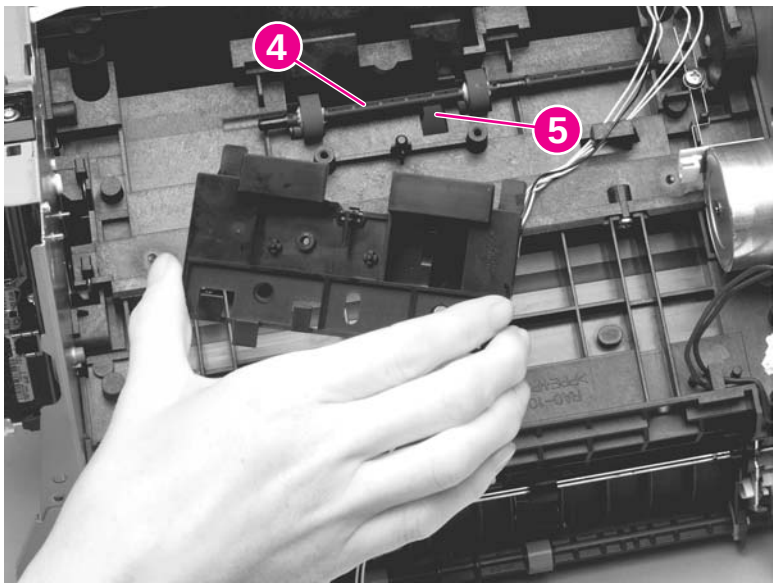

Figure 5-94. **Remove the paper-feed assembly (2 of 4)**

Reinstallation tip

Insert the bottom of the sensor flag into the hole (callout 5) in front of the paper-feed roller shaft. See To reinstall for more details about the sensor flag.

8. Use needle-nose pliers to push the two tabs away from the end of the paper-feed-roller shaft.

Note

For ease of removal, first remove the right plate assembly (see Right plate assembly). Do not remove the gear shield, because the gears and springs can easily separate and be misplaced.

9. Pull the paper-feed roller shaft toward the left side of the product and remove it.

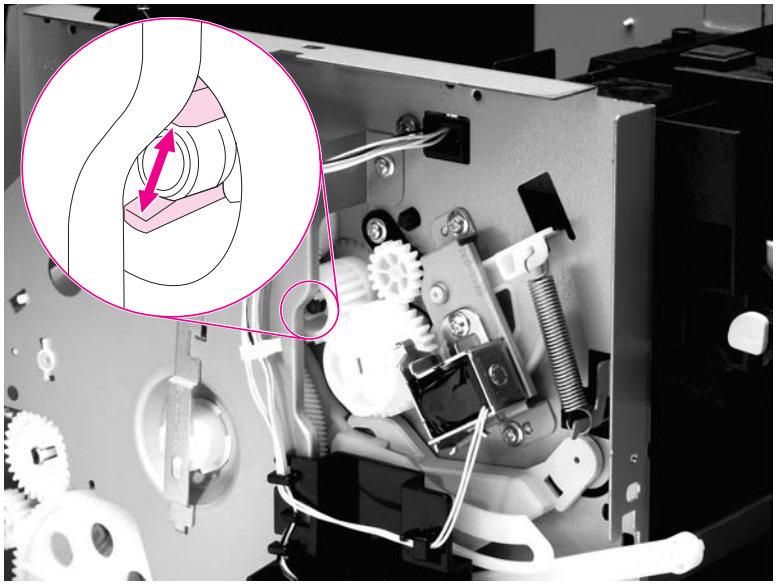

Figure 5-95. **Remove the paper-feed assembly (3 of 4)**

To reinstall

a. Insert the two tabs (callout 6) on the paper-feed assembly into the two recesses.

b. Insert the bottom of the sensor flag into the hole in front of the paper-feed roller shaft (see callout 5 in Figure 5-94. Remove the paper-feed assembly (2 of 4)). The top of the sensor flag (callout 7) should move freely.

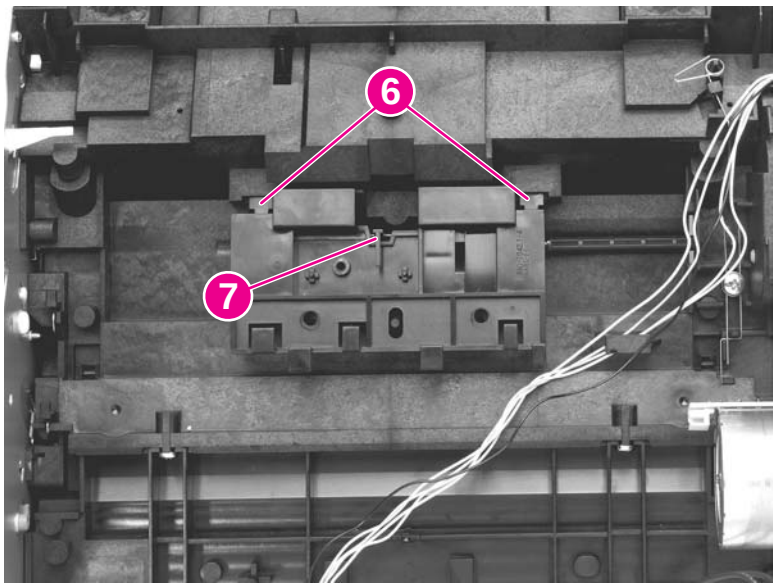

Figure 5-96. **Remove the paper-feed assembly (4 of 4)**

6 Troubleshooting

This chapter provides information about the following topics.

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Basic troubleshooting

Is Power-on successful?

When the product is connected to a grounded power source, the words Hewlett Packard appear with moving cursors to indicate that the firmware code is loading, and the printer motor rotates for approximately 5 seconds. When the firmware is done loading (30 to 40 seconds after power-on), the message Scanner Bulb warming up appears on the control panel, and the scan head moves back and forth for 10 to 15 seconds. If you lift the lid, you will see that the scanner bulb is lit. Near the end of this time, the ADF motor turns on for about 2 seconds.

Cause	Solution
No power is available because of a failed power source, cable, switch, or fuse. (No LEDs are lit and the display is blank.)	1. Verify that the product is plugged in to a functional power source. 2. Verify that the power cable is functional and that the power switch is on. 3. Verify that FU101 (FU102 for 110-volt units) on the ECU is not open. 4. If all of these conditions are correct, replace the ECU.
The printer motor does not rotate.	1. Verify that the print cartridge is present. 2. Verify that the product doors are closed. 3. Verify that media is loaded in an input tray. 4. Verify that the printer paper-path sensors are functional. 5. Verify that the motor connector J402 is seated into the ECU. 6. Verify that the motor is correctly mounted to the product chassis. 7. If all of these conditions are correct, replace the ECU. 8. If, after replacing the ECU, the printer motor still does not rotate, replace the motor.
The ADF motor does not rotate, or the scanner bulb does not turn on.	1. Verify that the scanner connector is seated in both the formatter and the motor controller board. 2. Check all the cabling on the motor controller board. Make sure no cables are loose or damaged. 3. If the ADF motor still does not rotate, replace the ADF. 4. If the scanner bulb still does not turn on, replace the scanner assembly. 5. If the problem persists, replace parts one at a time in the following order until the problem is resolved: the motor controller board, the formatter, and, finally, the ECU.

Is the product ready?

The control panel should function without error messages.

Cause	Solution
An error message appears on the control-panel display.	Consult the list of common messages, which appears later in this chapter, to correct the error. See Control-panel messages.
The control panel is not functional.	Verify that the control-panel cable is seated into both the control panel and the motor controller board. Also check the connections between the motor controller board and the formatter. If all cables are undamaged and are seated correctly, but the problem persists, replace the control panel.
The control-panel display is blank, but the LEDs are lit.	1. Print a page from a software program. If the page prints, verify that the control-panel cables are correctly seated. 2. Recover the firmware by using the flash executable file or the recovery DIMM. See Updating or recovering the firmware code. 3. If the problem persists, replace the control panel. 4. If the problem persists, replace the motor controller board. 5. If the problem persists, replace the formatter.
The control-panel display and LEDs function, but buttons do not work.	Replace the control panel.
Squiggly lines appear on the control-panel display.	This is normal. If the problem persists, run a control-panel check. See Control-panel check.

Do engine tests and self-tests print?

Print an engine test, which is explained in Engine test. The engine test should print without paper-feed problems or print-quality problems. Also print a configuration report (see Troubleshooting tools).

Note: The formatter must be connected in order to perform an engine test.

Cause	Solution
The engine test is successful, but the configuration report does not print.	Replace the formatter.
The engine test is not successful.	Replace the ECU.
An error message appears on the control-panel display.	Consult the list of common messages, which appears later in this chapter, to correct the error. See Control-panel messages.
Media does not move smoothly through the printer paper-path.	Isolate printer paper-path problems by performing a paper-path check. See Paper-path check.
Documents print with poor print quality.	See Solving image-quality problems.

Is the copy function operational?

Place the configuration report into the ADF and make a copy. The report should feed smoothly through the ADF and copies should print without print-quality problems. Also make a copy from the flatbed.

Cause	Solution
The flatbed produces poor-quality copies.	1. If the print quality from the internal tests and the copy from the ADF are acceptable, clean the flatbed glass. 2. If, after performing the maintenance, the problem persists, replace the scanner assembly.
The ADF produces poor-quality copies.	1. If the print quality from the internal tests and the copy from the flatbed are acceptable, clean the ADF scanner glass or, if it is damaged, replace the glass. 2. If the problem persists, replace the scanner assembly.
Media does not move smoothly through the ADF path.	Clean the ADF pick roller and ADF separation pad. If the problem persists, replace the ADF pick roller and ADF separation pad. If the problem persists, replace the ADF.

Does the product send a fax?

Connect the phone line and verify the dial tone (by using a hand set, if necessary). Attempt to send a fax.

Cause	Solution
The fax cord is plugged into the additional device connector on the back of the product.	Verify that the fax cord is plugged into the fax interface port (the bottom phone-cord connector) on the back of the product.
The telephone line is not operational or the product is not plugged into the telephone line.	Make sure that the product is plugged into a telephone line that is known to work. Press FAX/SEND and listen for a dial tone. Try a different line.
The phone cord is faulty or is plugged into the wrong connector.	Try plugging the phone cord into the other connector on the LIU. Try a new cord.
The product's fax settings are set incorrectly.	Review and reset the product's fax settings.
The flat flexible cable between the formatter and the LIU is damaged or incorrectly seated.	Inspect, and reseat or replace the flat flexible cable between the LIU and the formatter.
The LIU is not operational.	Replace the LIU. If the problem persists, replace the formatter.
If the customer is using a digital subscriber line (DSL) connection, the setup might be incorrect.	See Solving problems with digital subscriber line (DSL) connections for information about setting up DSL connections.

Does the product receive a fax?

Use another fax machine to send a fax to the product.

Cause	Solution
The fax cord is plugged into the additional device connector on the back of the product.	Verify that the fax cord is plugged into the fax interface port (the bottom phone-cord connector) on the back of the product.

Does the product receive a fax?

Use another fax machine to send a fax to the product.

Cause	Solution
The telephone line is not operational or the product is not plugged into the telephone line.	Make sure that the product is plugged into a telephone line that is known to work. Press FAX/SEND and listen for a dial tone. Try a different line.
Too many telephone devices are plugged in, or telephone devices are not connected in the correct order.	Make sure that the product is the only device on the telephone line, and try again to receive the fax.
The product's fax settings are set incorrectly.	Review and reset the product's fax settings.
The flat flexible cable between the formatter and the LIU is damaged or incorrectly seated.	Inspect and reseat or replace the flat flexible cable between the LIU and the formatter.
The LIU is not operational.	Replace the LIU. If the problem persists, replace the formatter.
If the customer is using a digital subscriber line (DSL) connection, the setup might be incorrect.	See Solving problems with digital subscriber line (DSL) connections for information about setting up DSL connections.

Is the product software installed correctly?

Cause	Solution
The product software is not installed, or an error occurred during software installation.	Uninstall and then reload the product software. Make sure to use the correct installation procedure and the correct port setting.

Does the product print from the computer?

Connect the parallel cable or USB cable between the product and the computer. Use a word-processing program to send a print job to the product.

Cause	Solution
The cable is not connected correctly.	Reconnect the cable.
An incorrect driver is selected.	Select the correct driver.
Other devices are connected to the parallel or USB port.	Disconnect the other devices and try again to print.
An LPT port driver problem exists in Microsoft Windows.	Reset the computer's port settings. Verify that the port is set for bidirectional communication.
A problem exists in the USB device in the computer's device manager.	1. Uninstall the printer driver. 2. Delete the USB devices in the device manager. 3. Reinstall the printer driver.
The formatter has failed.	Replace the formatter.

Does the product scan to the computer?

Initiate a scan from the computer's basic desktop software or from the product.

Cause	Solution
Other devices are connected to the parallel port or USB port.	Disconnect the other devices, and try again to scan.
The computer's parallel-port hardware is not bidirectional.	Check the computer documentation to see if the port configuration can be changed.
The BIOS settings for the parallel port are set incorrectly.	Reset the computer's port settings. If the problem persists, reset the BIOS settings in CMOS.
Polling is turned off in HP Toolbox, or HP Toolbox is not running.	Start HP Toolbox and turn on polling.

Control-panel messages

The majority of the control-panel messages are intended to guide the user through normal operation. The control-panel messages indicate the status of the current operation, and include a page count on the second line of the display, if appropriate. When the product is receiving fax data, print data, or scanning commands, control-panel messages indicate this status. In addition, alert messages, warning messages, and critical error messages indicate situations that might require some action.

Note You must use the fax cord that came with the product in order to ensure that the product functions correctly.

Alert and warning messages

Alert and warning messages appear temporarily and might require the user to acknowledge the message by pressing MENU/ENTER to resume or by pressing CANCEL to cancel the job. With certain warnings, the job might not complete or the print quality might be affected. If the alert or warning message is related to printing and the auto-continue feature is on, the product will attempt to resume the printing job after the warning has appeared for 10 seconds without acknowledgement.

Note Event-log codes are not listed here. For a list of event-log codes, see Event-log codes.

Table 6-1. Alert and warning messages

Control panel message	Event log error message	Description	Recommended action
###: [Group Name] Phbook/ SpeedDial	None	The product is waiting for you to press a programmed one-touch button or enter a speed-dial code to a group-dial code.	Begin adding fax numbers to the group-dial code. See “To manage group-dial entries” in the fax guide.
Canceled copy. Clear document	None	The CANCEL button was pressed to cancel the current job while pages were feeding from the ADF. The cancel process does not automatically clear the ADF.	Pull the document release door open, remove the jammed item, and close the door. Then, clear the items in the ADF tray and start over.
Canceled scan. Clear document	None	The CANCEL button was pressed to cancel the current job while pages were feeding from the ADF. The cancel process does not automatically clear the ADF.	Pull the document release door open, remove the jammed item, and close the door. Then, clear the items in the ADF tray and start over.
Canceled send. Clear document	None	The CANCEL button was pressed to cancel the current job while pages were feeding from the ADF tray. The cancel process does not automatically clear the ADF.	Pull the document release door open, remove the jammed item, and close the door. Then, clear the items in the ADF tray and start over.
Cleaning Mode. **Wait 1-3 min.**	None	The product is running an internal cleaning cycle.	Wait for the product to finish the cleaning cycle. The message will clear when the cycle is finished.

Table 6-1. Alert and warning messages (continued)

Control panel message	Event log error message	Description	Recommended action
Comm. error	None	A fax communication error occurred between the product and the sender or receiver. For descriptions of communication errors, see Table 6-4. Fax receive codes and Table 6-5. Fax send codes.	Allow the product to retry sending the fax. Unplug the product telephone cord from the wall, plug in a telephone, and try making a call. Plug the product phone cord into a jack for another phone line. Try a different phone cord. If the error persists, check the flat flexible cable between the LIU and the formatter. Reseat or replace the cable. Update the firmware. See Updating or recovering the firmware code. If the error persists, replace the LIU.
Device error. [enter] to cont.	None	An internal error occurred in the product.	Press MENU/ENTER to resume the job.
Device is busy. **Try again later**	None	The product is currently in use.	Wait for the product to finish the current job.
Doc feeder jam **Clear, Reload**	None	A piece of media is jammed in the ADF tray.	Open the document release door, clear the jam, close the document release door, and reload the paper into the ADF tray. If the error persists, replace the ADF separation pad and ADF pickup roller.
Document feeder mispick. Reload	None	Media in the ADF tray was not picked up.	Remove the media from the ADF tray, and then reload it. If the error persists, replace the ADF pick roller and the ADF separation pad.

Table 6-1. Alert and warning messages (continued)

Control panel message	Event log error message	Description	Recommended action
Door open or no print cartridge	None	The print cartridge door is open, or the print cartridge is not installed properly.	1. Check that the print cartridge door and left-side door are completely closed. 2. Forcefully open and close the print-cartridge door to make sure that the print cartridge is seated. 3. Check that the print cartridge is correctly installed. (See Print cartridge for more information.) 4. Check that the door and print cartridge interlocks are operating correctly. (See Paper-path check for more information about the door interlock.)
Engine comm. error	None	The product experienced an internal communication error.	This is a warning message only. Job output might be affected.
Fax is busy **Redial pending**	None	The fax line to which you were sending a fax was busy. The product automatically redials the busy number. (See “Changing the redial setting” in the fax guide.)	Allow the product to retry sending the fax. Call the recipient to ensure that the fax machine is on and ready. Check that you are dialing the correct fax number. Check for a dial tone on the phone line by pressing FAX/SEND. Make sure that the phone is working by disconnecting the product, plugging in a telephone to the phone line, and making a voice call. Plug the product phone cord into a jack for another phone line, and try sending the fax again. Try a different phone cord. If the error persists, check the flat flexible cable between the LIU and the formatter. Reseat or replace the cable. If the error persists, replace the LIU.

Table 6-1. Alert and warning messages (continued)

Control panel message	Event log error message	Description	Recommended action
Fax is busy **Canceled send**	None	The fax line to which you were sending a fax was busy. The product has canceled sending the fax.	Call the recipient to ensure that the fax machine is on and ready. Check that you are dialing the correct fax number. Check that the **Redial if busy** option is enabled. Check for a dial tone on the phone line by pressing FAX/SEND. Make sure that the phone is working by disconnecting the product, plugging in a telephone to the phone line, and making a voice call. Plug the product phone cord into a jack for another phone line, and try sending the fax again. Try a different phone cord. If the error persists, check the flat flexible cable between the LIU and the formatter. Reseat or replace the cable. If the error persists, replace the LIU.
Fax memory full **Canceling send**	None	During the fax job, the memory filled. All pages of the fax have to be in memory for a fax job to work correctly. Only the pages that fit into memory were sent.	Print all received faxes or wait until all pending faxes are sent. Ask the sender to send the fax again. Cancel all fax jobs or clear the faxes from memory (see “Deleting faxes from memory” in the fax guide).
Fax memory full **Canceling recv.**	None	During the fax transmission, the product ran out of memory. Only the pages that fit into memory will be printed.	Print all of the faxes and have the sender resend the fax. Cancel all fax jobs or clear the faxes from memory (see “Deleting faxes from memory” in the fax guide). Note: Adding a memory DIMM does not help resolve this issue.

Table 6-1. Alert and warning messages (continued)

Control panel message	Event log error message	Description	Recommended action
Fax recv. error	None	An error occurred while trying to receive a fax.	Ask the sender to resend the fax. Try faxing back to the sender or another fax machine. Check for a dial tone on the phone line by pressing FAX/SEND. Check that the telephone cord is securely connected by unplugging and replugging the cord. Make sure that the phone is working by disconnecting the product, plugging in a telephone to the phone line, and making a voice call. Turn off error-correction mode (ECM), and turn off V.34. Ask the sender to resend the fax. Connect the product to a different phone line. If the error persists, check the flat flexible cable between the LIU and the formatter. Reseat or replace the cable. If the error persists, replace the LIU.
Fax Send error	None	An error occurred while trying to send a fax.	Try resending the fax. Try faxing to another fax number. Check for a dial tone on the phone line by pressing FAX/SEND. Check that the telephone cord is securely connected by unplugging and replugging the cord. Make sure that the phone is working by disconnecting the product, plugging in a telephone to the phone line, and making a voice call. Connect the product to a different phone line. If the error persists, check the flat flexible cable between the LIU and the formatter. Reseat or replace the cable. If the error persists, replace the LIU.

Table 6-1. Alert and warning messages (continued)

Control panel message	Event log error message	Description	Recommended action
Fit to Page on flatbed only	None	The copy reduce/enlarge feature (called "Fit to Page") applies only to copies made from the flatbed scanner.	Use the flatbed or select another reduction/enlargement setting.
Group dial not allowed in group	None	The speed-dial code that you typed is programmed for a group. Adding a group-dial to another group-dial is not allowed.	Add one-touch buttons (programmed as an individual speed dial) or speed-dial codes to a group-dial.
Invalid date	None	An invalid date was entered, such as June 35.	Re-enter the date.
Invalid entry	None	Invalid data or response.	Correct the entry.
Mem. low 1 copy Press [cancel]	None	The product completed making one copy. The remaining copies have been canceled because of low product-memory.	Press CANCEL to clear the error. Break the job into smaller jobs that contain fewer pages.
Memory is low Try again later	None	The product does not have enough memory to start a new job.	Wait until the current job is finished before starting a new job.
Memory is low. Press [enter]	None	The product memory has been almost completely filled.	Allow the product to finish the job, or press MENU/ENTER to cancel the job.
Memory low Only 1 copy made	None	The product does not have enough memory to complete the collated copy job.	Break the job into smaller jobs that contain fewer pages.
No Dial Tone	None	The product could not detect a dial tone.	Check for a dial tone on the phone line by pressing FAX/SEND. Unplug the telephone cord from both the product and the wall and replug the cord. Unplug the product telephone cord from the wall, plug in a telephone, and try making a call. Plug the product phone cord into a jack for another phone line. See “Changing the detect-dial-tone setting” in the fax guide. Update the firmware. See Updating or recovering the firmware code. If the error persists, replace the LIU. If, after replacing the LIU, the error persists, replace the formatter.
No document sent	None	The product did not scan any pages, or it did not receive any pages from the computer to transmit a fax.	Try sending the fax again.

Table 6-1. Alert and warning messages (continued)

Control panel message	Event log error message	Description	Recommended action
No fax answer. **Canceled send**	None	Attempts to redial a fax number failed, or the “Redial-no answer” option was turned off.	Call the recipient to ensure that the fax machine is on and ready. Check that you are dialing the correct fax number. Check that the redial option is enabled. Unplug the telephone cord from both the product and the wall and replug the cord. Unplug the product telephone cord from the wall, plug in a telephone, and try making a call. Plug the product phone cord into a jack for another phone line. If the error persists, check the flat flexible cable between the LIU and the formatter. Reseat or replace the cable. If the error persists, replace the LIU.
No fax answer. **Redial pending**	None	The receiving fax line did not answer. The product attempts to redial after a few minutes.	Allow the product to retry sending the fax. Call the recipient to ensure that the fax machine is on and ready. Check that you are dialing the correct fax number. If the product continues to redial, unplug the product telephone cord from the wall, plug in a telephone, and try making a call. Plug the product phone cord into a jack for another phone line. Try a different phone cord. If the error persists, check the flat flexible cable between the LIU and the formatter. Reseat or replace the cable. If the error persists, replace the LIU.

Table 6-1. Alert and warning messages (continued)

Control panel message	Event log error message	Description	Recommended action
No fax detected	None	The product answered the incoming call but did not detect that a fax machine was calling.	Allow the product to retry receiving the fax. Try a different phone cord. Plug the product phone cord into a jack for another phone line. If the error persists, check the flat flexible cable between the LIU and the formatter. Reseat or replace the cable. If the error persists, replace the LIU.
No fax pages to reprint	None	The product attempted to execute “Reprint Last” when no faxes were in memory.	Receive a fax before attempting to use this option.
No paper pickup [enter] to cont.	None	The print engine has failed to pick up a piece of media.	Reload the media in the input tray and press MENU/ENTER to continue the job. If the error persists, replace the printer pickup roller.
Out of range	None	An invalid number was typed.	Retype the number.
Page too complex [enter] to cont.	none	The product could not print the current page because of its complexity.	Press MENU/ENTER to clear the message. Allow the product to finish the job, or press CANCEL to cancel the job.
Phone Book ### is empty	None	The one-touch button or speed-dial code has not been programmed and therefore cannot be added to a group.	Press MENU/ENTER to program the one-touch or speed-dial. To program a group-dial, press CANCEL and use the control panel menu to create a new group. Press CANCEL if you do not want to program the one-touch or speed-dial.
Printer jam Clear paper path	None	The product has detected a jam.	Clear the jam. The job should continue to print. If it does not, try reprinting the job. If media jams frequently, see Maintenance.
Scanner reserved for PC scan	None	A computer is using the product to create a scan.	Wait until the computer scan has finished, or cancel the scan from the computer software, or press CANCEL.
Scanning error Cannot connect	None	The product cannot transmit scan information to a computer.	Make sure that the connection cable is not loose or damaged. Replace the cable if necessary, and try the scan again.
Settings cleared	None	The product has cleared job settings.	Re-enter any appropriate job settings.

Critical error messages

Critical error messages can indicate some kind of failure. Cycling the power might fix the problem. If a critical error persists, the product might require service.

Table 6-2. Critical error messages

Control panel message	Event log error message	Description	Recommended action
50 Fuser Error	None	The product has experienced an internal hardware error.	Turn off the power switch, wait at least **20 minutes**, and then turn on the power switch and wait for the product to initialize. Check the cabling connections to the heating element. If a surge protector is being used, remove it. Plug the printer directly into the wall socket. Use the power switch to turn the product on. Perform the heating-element check (see Heating-element check). If the error persists, replace the heating element. If, after replacing the heating element, the error persists, replace the ECU.
51 Laser Error	None	The product has experienced an internal hardware error.	Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize. Check the cabling connections to the laser scanner assembly. Try connecting the product to a different power source or surge protector. If the error persists, replace the laser scanner assembly.

Table 6-2. Critical error messages (continued)

Control panel message	Event log error message	Description	Recommended action
52 Scanner Error	None	The product has experienced an internal hardware error.	Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize. Make sure that the flat, flexible cables (FFCs) are properly connected on the formatter and on the laser/scanner. Try connecting the product to a different power source or surge protector. If the error persists, replace the laser scanner assembly.
57 Fan Error **Turn off then on**	none	The product has experienced a problem with its internal fan.	Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize. Check the fan cable connectors. If the error persists, replace the fan.
79 Error **Turn off then on**	None	The product has experienced an internal firmware error.	Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize. If the error persists, upgrade the firmware. See Updating or recovering the firmware code.
ADF door is open	None	The ADF lid is open or a sensor is malfunctioning.	Make sure the ADF lid is closed. Make sure that the ADF is completely seated. If necessary, remove the ADF and reinstall it. If the message persists, turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize. Try another power source. If the sensor is not functioning, replace the ADF.
CCD Scanner Error	None	The scanner assembly experienced an internal error.	Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize. Try another power source. If the error persists, replace the scanner assembly.

Table 6-2. Critical error messages (continued)

Control panel message	Event log error message	Description	Recommended action
Scanner Bulb Failure	None	The scanner assembly experienced an error in scanner bulb functionality.	Turn off the power by using the power switch, wait at least 30 seconds, and then turn on the power and wait for the product to initialize. Try another power source. If the error persists, lift the cover to see if the scanner bulb is illuminating. If it is not illuminating, replace the scanner assembly. If the bulb is illuminating, the scan module might be too far to the right to find the calibration strip during startup. Use the following procedure to move the scan module so it begins the startup cycle farther to the left: 1. Cycle the power and watch the movement of the scan module. The scan module will move to the left and the bulb will turn on. When it does, cycle the power. 2. Repeat the first step until the scan module is about 3 cm (about 1 inch) from the right edge of the scan glass. 3. Turn on power by using the power switch. If the error persists, replace the scanner assembly.

Event-log codes

These codes appear in the event-log section of the configuration report. Use this table to associate an event-log code with a description of the event.

Table 6-3. Event-log codes

Event code	Event sub-code	Event
10	the line in the file at which the event occurred	asserts
20	10	receive-fax directory is missing
20	20	send-fax directory is missing
20	30	send-ID file is corrupted
20	40	receive-ID file is corrupted
20	50	fax log is corrupted
20	60	flash init as a result of firmware upgrade
20	6060	write to flash failed
79	2	access error
79	3	address error
79	4	illegal instruction
79	8	privilege violation
79	9	trace fault
79	10	unimplemented line-a opcode
79	11	unimplemented line-f opcode
79	14	format error
79	15	uninitialized interrupt
79	120	ASIC fault
79	5 or 6 or 7	reserved
30016	0	insufficient memory
30017	0	print page punt
30035	0	NVRAM error
30036	0	NVRAM service error
30108	0	MIO connection break
30109	0	data communication error
30110	0	MIO buffer overflow

Table 6-3. Event-log codes (continued)

Event code	Event sub-code	Event
30111	0	parallel buffer overflow
35028	0	bad MIO
35031	0	invalid personality
50003	0	bad fuser
50004	0	bad beam detect
50005	0	bad scanner motor
50006	0	bad fan
50007	0	engine communication error
50012	0	bad malfunction
50013	0	laser malfunction

Solving image-quality problems

If the problem occurs when printing, see Solving print image-quality problems.

If the problem occurs when copying or scanning, see Solving scanning (copying) image-quality problems.

Also, see Solving print paper-feed problems and Jams occur in the automatic document feeder (ADF).

Checking the print cartridge

Image-formation defects are frequently the result of problems in the print cartridge. If the source of the defect is not immediately evident, always replace the print cartridge before troubleshooting image defects.

Use the following checklist to make sure that the print cartridge is still operable.

- Make sure that the print cartridge is seated properly.
- Check the print cartridge to see if it has been disassembled or refilled.
- Inspect the print cartridge to see if toner is leaking through worn seals.
- Check the surface of the photosensitive drum in the cartridge to see if it has been damaged or scratched. Touching the drum contaminates the photosensitive surface and can cause spotting and image defects.
- Blurred areas on printed pages indicate that the photosensitive drum in the cartridge has been overexposed to light. Because overexposure to light causes permanent damage to the photosensitive drum, the cartridge should be replaced.

To redistribute the toner in the print cartridge

Before installing a new print cartridge or when the toner begins to run low, redistribute the toner by rotating the cartridge back and forth five or six times.

Solving print image-quality problems

Use the following tables to help solve problems with printed pages.

Note

Some image-quality problems can be isolated by performing printer functional tests. See Functional checks. Image quality problems can also be caused by using cables that are not IEEE-1284 compliant.

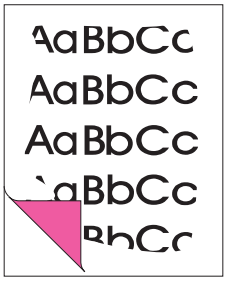
Pages do not print.

Cause	Solution
The product is not plugged in, or the power switch is not on.	Make sure that the product is plugged into a live wall outlet or power strip and that the power switch is turned on.
The computer cable is loose.	Check that the parallel cable or USB cable between the product and the computer is securely connected.

Pages do not print.

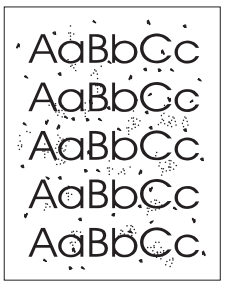
Cause	Solution
The tape was not removed from the print cartridge.	Remove the print cartridge, remove the tape, and reinstall the print cartridge. See Print cartridge.
The print cartridge is out of toner.	Replace the print cartridge. See Print cartridge.
The media does not meet HP's specifications (for example, it is too moist or too rough).	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.

Parts of the page around the edges are not printing.



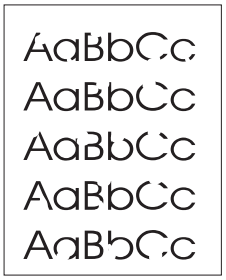
Cause	Solution
The product cannot print to the edge of the paper. The printer has minimum margins on each edge of 4.23 mm (0.167 inch).	To fit the image into this printable area, slightly reduce the size of the image.
The reduction setting is set incorrectly.	Check the reduction setting in the "Print" or "Setup" window from within the program that you are using.

Toner specks appear on the printed page.



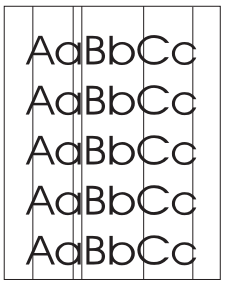
Cause	Solution
The media does not meet HP's specifications (for example, it is too moist or too rough).	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
The print path needs to be cleaned.	Clean the print path. See To clean the paper path.

Characters are only partially printed (also referred to as dropouts).



Cause	Solution
A single sheet of paper is defective.	Try reprinting the job.
The print density needs to be adjusted.	Adjust the print density from the HP Toolbox.
The moisture content of the paper is inconsistent, or the paper has moist or wet spots on the surface.	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
The paper was damaged by inconsistent manufacturing processes.	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
Draft mode or **EconoMode** is selected in the driver.	Try the normal or best setting.
The print cartridge is defective.	Replace the print cartridge.

Vertical lines appear on the printed page.



Cause	Solution
The priority input tray is not in place.	Adjust the priority input tray.
The photosensitive drum inside the print cartridge is scratched.	Replace the print cartridge.
The fuser is damaged or has an obstruction.	Replace the fuser.

The printed page has a gray background.

Cause	Solution
The priority input tray is not in place.	Adjust the priority input tray.
The print density setting is too high.	Decrease the amount of background shading by using the HP Toolbox.
The media basis-weight is too high.	Change the media to a lower basis-weight.
The humidity level is too low.	Very low humidity can increase the amount of background shading. Move the product to a different location, or decrease the background shading by using the HP Toolbox.
The print cartridge needs to be replaced.	Replace the print cartridge.

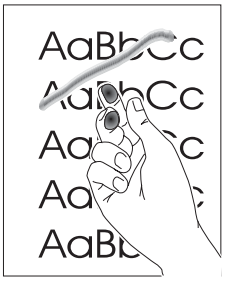
Toner smears appear on the printed page.

Cause	Solution
If the toner smears appear on the leading edge of the media, the media guides are dirty.	Wipe the media guides with a dry, lint-free cloth.
The media does not meet HP's specifications (for example, it is too moist or too rough).	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
The print cartridge needs to be replaced.	Replace the print cartridge.

Toner smears appear on the printed page.

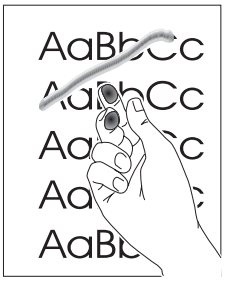
Cause	Solution
The fuser temperature is too low. The fuser temperature varies according to the type of media being used.	In the **Paper** tab of the driver, under **Type is:**, select the appropriate media type from the drop-down list. Perform the heating element check. See Heating-element check. If the error persists, replace the heating element. If, after replacing the heating element, the error persists, replace the ECU.

The toner is loose, and it does not stay attached to the printed page.



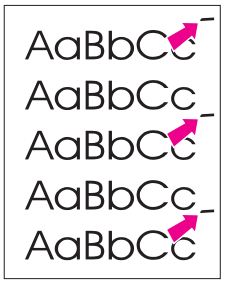
Cause	Solution
The inside of the printer is dirty.	Clean the print path. (See To clean the paper path.)
The media does not meet HP's specifications (for example, it is too moist or too rough).	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
The driver is not set for the correct media.	1. On the **Paper** tab of the printer driver, under **Type is:**, select the correct media type from the drop-down list. 2. Select the correct media by using the HP Toolbox.
The power strip is not working correctly.	Plug the product directly into an ac outlet.

The toner is loose, and it does not stay attached to the printed page.



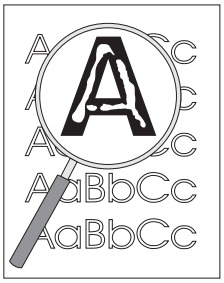
Cause	Solution
The fuser temperature is too low. The fuser temperature varies according to the media type being used.	In the **Paper** tab of the printer driver, under **Type is:**, select the correct media type from the drop-down list. Perform the heating element check. See Heating-element check. If the error persists, replace the heating element. If, after replacing the heating element, the error persists, replace the ECU.
The fuser film is torn or has holes.	Replace the fuser.
The print cartridge needs to be replaced.	Replace the print cartridge.

Repetitive vertical defects appear on the printed page.



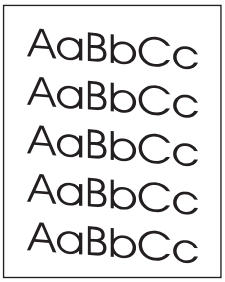
Cause	Solution
If the repetitive mark occurs at equal distance between marks, either the print cartridge or a printer roller is damaged.	Use the defect ruler to identify the spacing. Check the appropriate component and replace if necessary. See Repetitive image-defect ruler.
The internal parts have toner on them.	If the defects occur on the back of the page, the problem will probably correct itself after a few more printed pages. Otherwise, clean the printer. (See To clean the paper path.)
The driver is not set for the correct media.	1. In the **Paper** tab of the printer driver, under **Type is:**, select the correct media type from the drop-down list. (This affects the current print job only.) 2. Select the correct media from the HP Toolbox.

Characters are poorly formed and are producing hollow images.



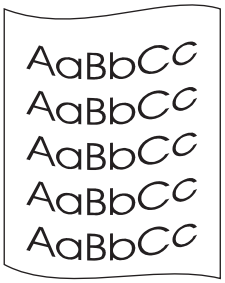
Cause	Solution
The media is too slick.	Try a different media. Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
The driver is not set for the correct media.	1. In the **Paper** tab of the printer driver, under **Type is:**, select the correct media type from the drop-down list. (This affects the current print job only.) 2. Select the correct media through HP Toolbox.

Pages are skewed (crooked).



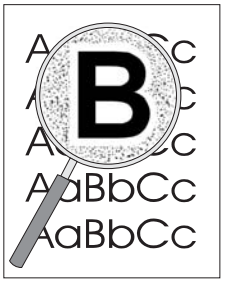
Cause	Solution
The media is loaded incorrectly.	Reload the media, and make sure that the media guides are not too tight or too loose against the media stack.
The media guides are broken or missing.	Replace the media input tray or the paper-pickup unit.
The input tray is too full.	Remove some of the sheets. The main input tray can hold up to 250 sheets of 75-g/m^2 (20-lb) bond-weight paper (less for heavier paper) or from 20 to 30 envelopes. The priority input tray can hold up to ten sheets of 75-g/m^2 (20-lb) bond-weight paper (one sheet of heavier paper) or one envelope.
The type and quality of media does not meet HP's specifications.	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.

The printed page has curls or waves.



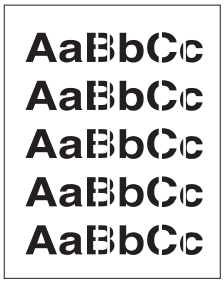
Cause	Solution
Paper curl is inherent to the laser printing process; it occurs when paper is subjected to heat.	Curled paper tends to relax as it cools. Place the paper on a flat surface while it is cooling.
The environment is too warm or too humid.	1. Both high temperatures and high humidity levels cause media to curl. Move the product to a different environment. 2. Use a different media. Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
The media was in the input tray for too long.	Turn the stack of media over and put it back in the tray. Rotate the media 180° and put it back in the tray.
The standard paper path is not working correctly.	Open the straight-through output door on the back of the product and use this paper path.
The fuser temperature is too high. The fuser temperature varies according to the type of media being used.	Select a lighter-weight media type from the printer driver or the HP Toolbox.

Large amounts of toner are scattered around the characters.



Cause	Solution
The media resistivity is too high.	1. Use a different media. Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*. 2. Turn the stack of media over and put it back in the tray. 3. Use media that is designed for laser printers.

Vertical white stripes appear.



Cause	Solution
The media does not meet HP's specifications (for example, it is too moist or too rough).	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
The toner is low.	Gently shake the print cartridge back and forth to redistribute the toner.

Solving scanning (copying) image-quality problems

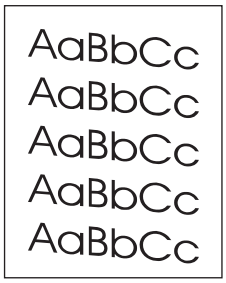
Note

Some image-quality problems can be isolated by performing printer functional tests. See Functional checks. Image quality problems can also be caused by using cables that are not IEEE-1284 compliant.

Pages do not print.

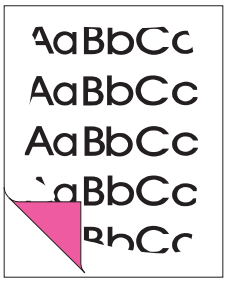
Cause	Solution
The product is not plugged in, or the power switch is not on.	Make sure that the product is plugged into a live wall outlet or power strip and that the power switch is turned on.
The computer cable is loose.	Check that the cable between the product and the computer is securely connected.
The tape was not removed from the print cartridge.	Remove the print cartridge, remove the tape, and reinstall the print cartridge. (See Print cartridge.)
The print cartridge is out of toner.	Replace the print cartridge. (See Print cartridge.)
The media does not meet HP's specifications (for example, it is too moist or too rough).	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
The original was loaded upside-down.	Load the original with the side to be scanned facing up in the ADF or down on the flatbed.

Pages are skewed (crooked).



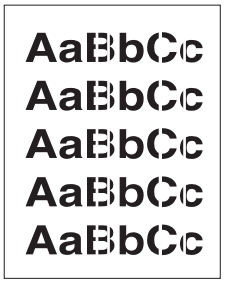
Cause	Solution
The media is loaded incorrectly.	Reload the media, and make sure that the media guides are not too tight or too loose against the media stack.
The media guides are broken or missing.	Replace the media input tray or the paper-pickup unit.
The ADF input tray is too full.	Remove some of the sheets. The ADF input tray can hold up to 50 sheets of 75-g/m^2 (20-lb) bond-weight paper.
The type and quality of media does not meet HP's specifications.	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.

Parts of the page around the edges are not printing.



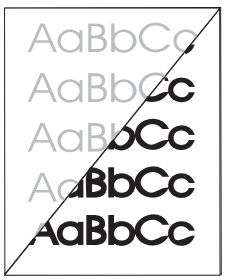
Cause	Solution
The product cannot print to the edge of the paper. The printer has minimum margins on each edge of 4.23 mm (0.167 inch).	To fit the image into this printable area, slightly reduce the size of the image.
If copying, the reduction setting is incorrect.	Copied images will be clipped if the image on the original is too close to the edge of the original.
The paper size setting is incorrect.	Set the correct page size on the control-panel menu.

Vertical white stripes appear.



Cause	Solution
The media does not meet HP's specifications (for example, it is too moist or too rough).	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
The toner is low.	Gently shake the print cartridge back and forth to redistribute the toner.
If copying with the ADF, the ADF glass is dirty.	1. Clean the ADF glass. See To clean the glass. 2. If the problem persists, replace the print cartridge. 3. If the problem persists, replace the fuser assembly.

Copies or scanned images are too light or too dark.

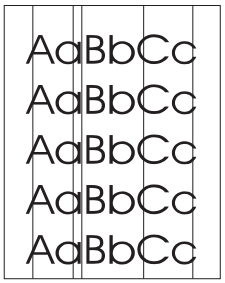


Cause	Solution
The contrast is not set correctly.	1. Adjust the contrast and resolution settings on the control-panel menu or from the HP Toolbox. 2. Check that the contrast and resolution settings are correct. See the user guide for more information.
The original image is very light or very dark.	Adjust the resolution and contrast setting(s) on the control-panel menu or from the HP Toolbox.
The scanned image is too light or too dark because the original was on colored paper.	If the original was on a colored paper, including brown recycled paper, the text might not be clear. Adjust the resolution, contrast, and brightness settings from HP Toolbox.

The printed page has a gray background.

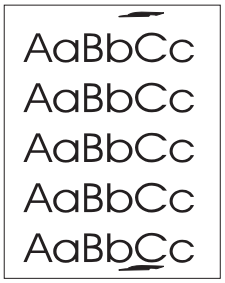
Cause	Solution
The priority input tray is not in place.	Adjust the priority input tray.
The print density setting is too high.	Decrease the amount of background shading by using the HP Toolbox.
The lighter/darker setting is incorrect.	Adjust the lighter/darker setting to a lighter level.
The media basis-weight is too high.	Change the media to a lower basis-weight.
The humidity level is too low.	Very low humidity can increase the amount of background shading. Move the product to a different location, or decrease the background shading by using the HP Toolbox.
The print cartridge needs to be replaced.	Replace the print cartridge.

Vertically-aligned black streaks or smears appear on successive pages.



Cause	Solution
The ADF glass is dirty.	Try copying from the flatbed scanner. If the problem occurs only with the ADF, clean the ADF glass. See Cleaning the product.
The printer needs to be cleaned.	If the problem occurs when copying from the flatbed scanner and the ADF, clean the printer. See To clean the paper path.
A component is damaged. (For example, the photosensitive drum inside the print cartridge is scratched.)	1. Replace the print cartridge if it is damaged and if maintenance procedures do not improve print quality. 2. Replace the scanner assembly.

Scanned images have black dots or streaks.

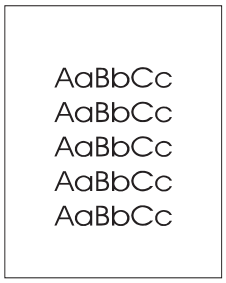


Cause	Solution
The scanner glass is dirty.	Clean the ADF path and flatbed glass. See Cleaning the product.
A problem exists with the scanner assembly.	Replace the scanner assembly.
The toner drum in the print cartridge is damaged.	Replace the print cartridge.

Scanned text is not clear.

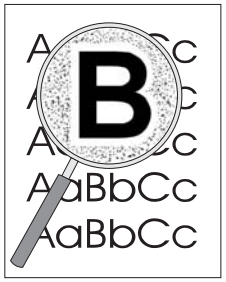
Cause	Solution
The contrast, resolution, or brightness needs to be adjusted before scanning.	1. Adjust the contrast and resolution settings from the HP Toolbox. 2. Check that the contrast and resolution settings are correct. See the user guide section for more information.
The original is on colored paper.	If the original is on colored paper, including brown recycled paper, the text might not be clear. Try adjusting the resolution, contrast, and brightness settings from the HP Toolbox.
There is a problem with the scanner assembly.	Replace the scanner assembly.

Images are scanning at a reduced size.



Cause	Solution
The HP software settings are set to reduce the scanned image.	1. Adjust the settings from the HP Toolbox. 2. Adjust the settings in the HP LaserJet Scan software.

Large amounts of toner are scattered around the characters.



Cause	Solution
The media resistivity is too high.	1. Use a different media type. Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*. 2. Turn the stack of media over and put it back in the tray. 3. Use media that is designed for laser printers.

Repetitive image-defect ruler

Use the repetitive image-defect ruler to help solve image-quality problems. Place the top line on the ruler next to the first occurrence of the defect on the page. Find the mark that points to the next instance of the defect to identify the component that is causing the defect.

Note The repetitive image defect ruler is for reference only and might not display or print to exact scale.

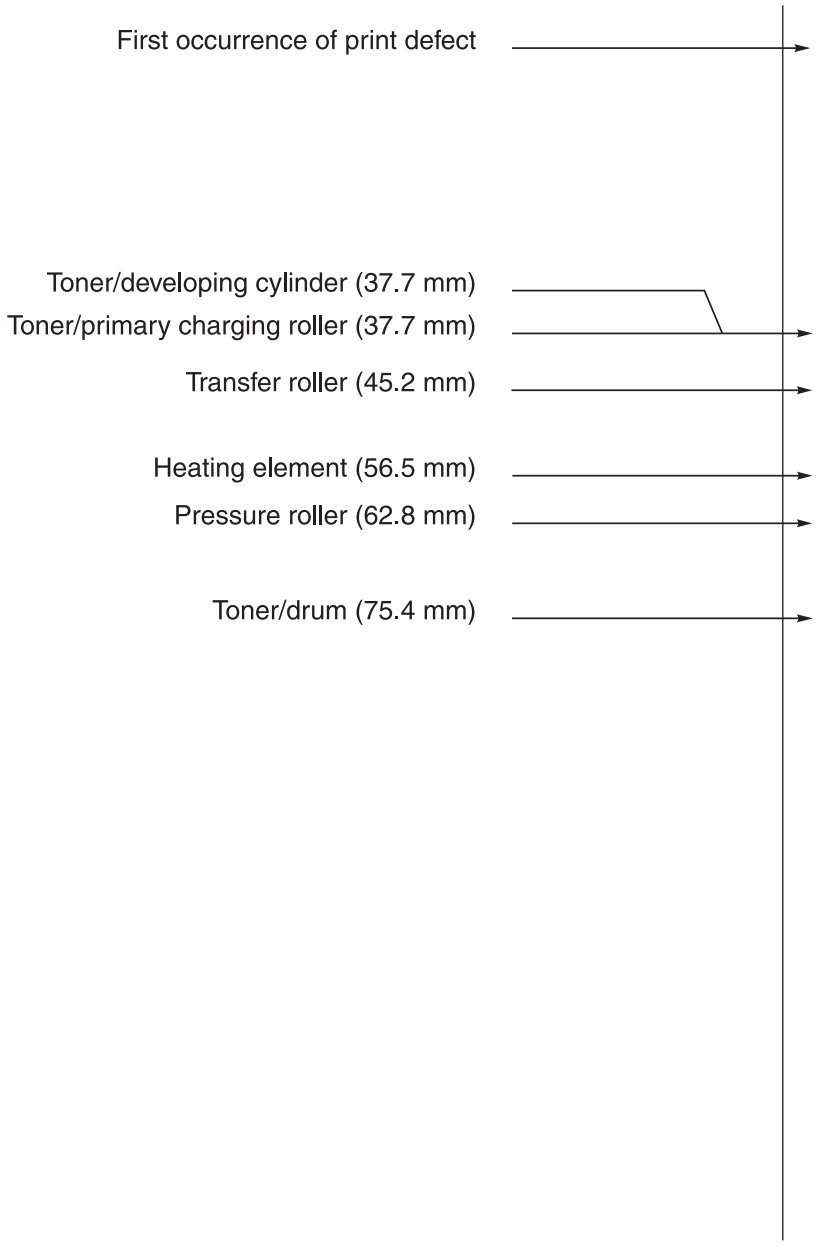

First occurrence of print defect
Toner/developing cylinder (37.7 mm)
Toner/primary charging roller (37.7 mm)
Transfer roller (45.2 mm)
Heating element (56.5 mm)
Pressure roller (62.8 mm)
Toner/drum (75.4 mm)

Figure 6-1. Repetitive image defect ruler

Solving paper-feed problems

Use the information in his section to solve problems related to moving paper or documents through the product.

If the problem occurs when copying or scanning, see Solving scanner (copier) paper-feed problems.

Jams occur in the printer

Occasionally, media becomes jammed during a print job. Try the following remedies before you attempt to clear the jam:

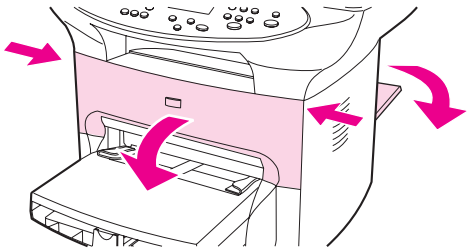
- Make sure that the media meets specifications.
- Make sure that the media is not wrinkled, folded, or damaged.
- Make sure that the product is clean.
- Make sure that the input trays are loaded properly and are not too full.
- When printing to the straight-through output path, close and open the door again to make sure that the green pressure release levers are closed.

To clear a jam

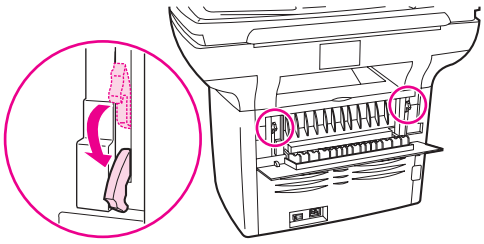
CAUTION Jams might result in loose toner on the page. If toner falls on clothing, wash it in cold water. Hot water will permanently set the toner into the fabric. If toner is on your hands, wash them in cold water.

Do not use a sharp object, such as a pencil or scissors, to remove jammed media.

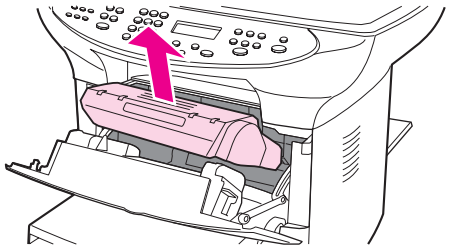
1. Open the print-cartridge door and the straight-through output door.



2. Rotate the green pressure release levers at the back of the product downward. If it is possible to remove the media from the front of the product without removing the print cartridge, do so, and continue with step 4.

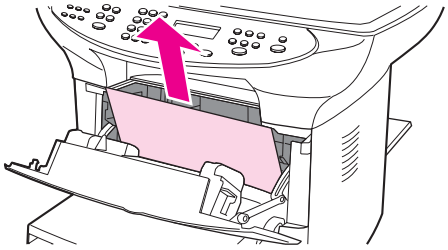


3. Grasp the handle on the print cartridge, remove the print cartridge, and set it aside.



CAUTION To prevent damage to the print cartridge, do not expose it to light any longer than necessary. Place the print cartridge in a paper bag or other opaque container until you can place it back in the device.

4. With both hands, grasp the side of the media that is most visible (this includes the middle), and carefully pull it free from the product.



5. After the jammed media is removed, replace the print cartridge, and close the print-cartridge door and the straight-through output door.

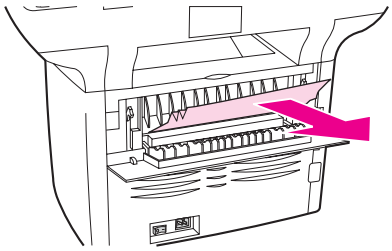
Note The pressure release levers automatically close when the straight-through output door closes.

6. After clearing a jam, turn off the product, and then turn it on again.

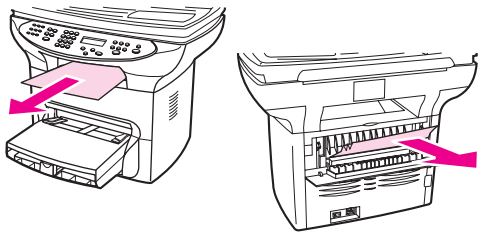
To clear other media jams

CAUTION Never use a sharp object, such as a pencil or scissors, to remove jammed media.

If the media has crumpled and jammed in the back of the product, open the straight-through output door. Release the two green fuser levers. Gently pull the media out of the rollers. Close the straight-through output door.



If the media has jammed where it exits the product, release the two green fuser levers, grasp the leading edge of the media, and pull the media out through the output bin. Re-engage the fuser levers before attempting to print again.



Note

If you turned the product off before clearing the jam, turn it on again, and then resend the printing or copying job.

If the media has jammed in the automatic document feeder (ADF), see Jams occur in the automatic document feeder (ADF).

Solving print paper-feed problems

Pages are coming out curled or wrinkled.

Cause	Solution
Paper curl is inherent to the laser printing processes, and occurs when paper is subjected to heat. Paper curl tends to relax as the paper cools while resting on a flat surface.	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
Paper is curled or wrinkled when printing.	Open the straight-through output door on the back of the product and use this paper path. In the printer driver, on the **Paper** or **Paper/ Quality** tab, select a lighter-weight media type, such as **Light <75 g/m2**, to reduce the fuser temperature.
Paper is curled when faxing or copying.	In the **Service** menu on the control panel, select **Less paper curl** to reduce the fuser temperature.
Paper is not stored properly.	Whenever possible, store paper in its sealed ream at room temperature.
The media is too long for the printer output bin.	Use the long media extension.

Print is misaligned on the page (skewed pages).

Cause	Solution
The media input tray is overfilled.	Remove some of the media.
The paper guides are not set correctly, are broken, or are missing.	Be sure to center the paper with the side media guides. Verify that the guides are not adjusted too tightly or too loosely against the paper. Check for broken or missing guides and replace as necessary.

Print is misaligned on the page (skewed pages).

Cause	Solution
The paper's weight or surface finish does not meet HP's specifications.	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.

The printer feeds multiple sheets or jams frequently from the main input tray or priority input tray.

Cause	Solution
Paper guides are not adjusted properly.	Slide the guides against the sides of the stack in the media input tray or the priority input tray to center the paper. Make sure the guides are not adjusted too tightly.
Paper was not removed from the main input tray before refilling the tray.	Always remove paper from the main input tray before refilling it.
The main input tray or priority input tray is overfilled.	Remove some of the sheets. The main input tray can hold up to 250 sheets of 75-g/m ^{2} (20-lb) bond-weight paper (less for heavier paper) or from 20 to 30 envelopes. The priority input tray can hold up to ten sheets of 75-g/m ^{2} (20-lb) bond-weight paper (one sheet of heavier paper) or one envelope.
The paper was poorly cut by the manufacturer and is sticking together.	"Break" the ream of paper by curving it into an upside-down u-shape; this can effectively decrease multifeeds. Also try turning the paper around to feed the opposite end first, or use a different type of paper.
Transparencies tend to stick to each other.	Remove the stack of transparencies, and bend it along each of the four edges to separate the sheets. If the problem persists, feed transparencies one-at-a-time.
The paper does not meet HP's specifications for print media.	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
The output capacity was exceeded in the paper output bin.	Do not allow more than 125 sheets of 75 g/m^2 (20-lb) bond-weight paper (less for heavier paper) to fill the paper output bin.
The pickup roller is dirty or damaged.	Clean the pickup roller. See Cleaning the pickup roller. Replace the pickup roller. See To replace the pickup roller.
The separation pad is dirty or damaged.	Clean the separation pad. See Cleaning the printer separation pad. Replace the separation pad. See Replacing the printer separation pad.

The printer feeds multiple sheets or jams frequently from the main input tray or priority input tray.

Cause	Solution
A sensor is not operating properly.	Check the sensors to make sure that none is jammed. If a sensor cannot be corrected, replace the sensor.

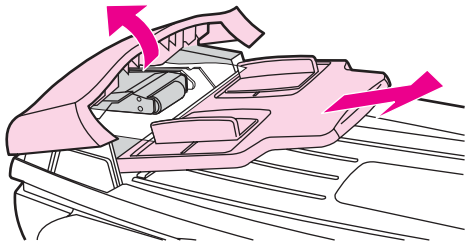
Jams occur in the automatic document feeder (ADF)

Occasionally, media becomes jammed during a copy, scan, or fax job.

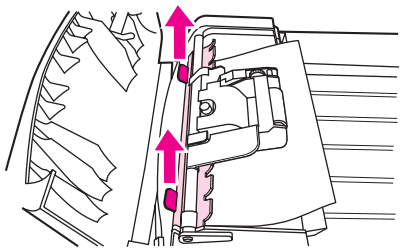
You are notified of a media jam by a software error message and the **Doc feeder jam Clear, Reload** message that appears on the device control panel display.

To clear a media jam from the automatic document feeder (ADF)

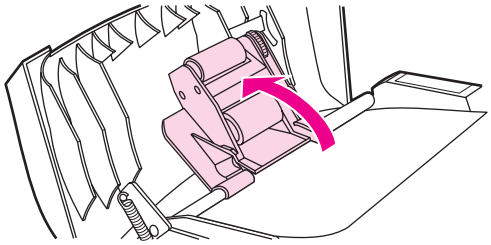
1. Remove the ADF input tray and open the ADF cover.



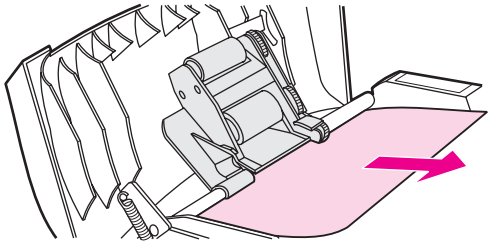
2. Remove the jam cleanout part. Using both hands, lift up on the two handles until the part unsnaps. Rotate and lift out the cleanout part and set it aside.



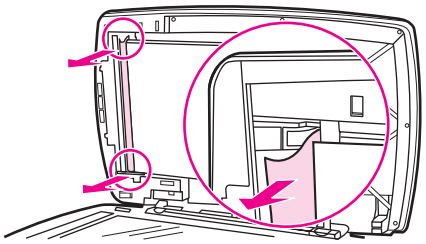
3. Lifting the green lever, rotate the pick mechanism until it stays open.



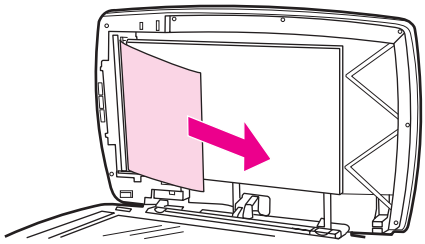
4. Gently try to remove the page without tearing it. If you feel resistance, go to the next step.



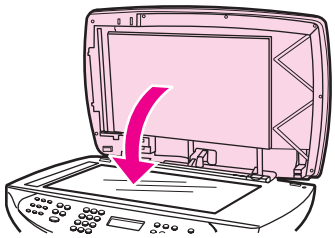
5. Open the ADF lid and gently loosen the media by using both hands.



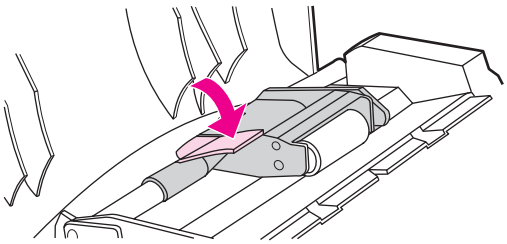
6. When the media is free, gently pull it out in the direction shown.



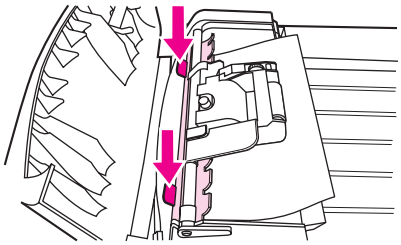
7. Close the lid to the flatbed scanner.



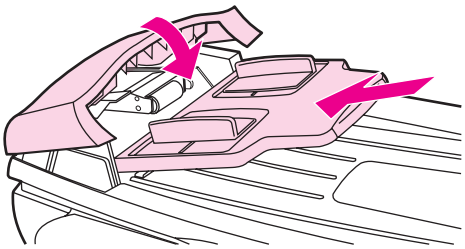
8. Lower the green lever.



9. Reinstall the cleanout part by inserting it as shown. Push down on the two tabs until the part snaps into place. Install the cleanout part correctly, because future jamming might occur if the cleanout part is not replaced correctly.



10. Close the ADF lid and replace the ADF input tray.



Solving scanner (copier) paper-feed problems

Long pages stop feeding through the ADF.

Cause	Solution
The document is too long.	The maximum document length is 381 mm (15 inches). If the document is too long, copy segments of it and scan each copy.
The paper delivery sensor is damaged.	Check the paper delivery sensor to make sure it is not jammed. If the sensor cannot be corrected, replace it.

Scanned items are crooked.

Cause	Solution
The media input tray guides are not set correctly, are broken, or are missing.	Be sure to center the paper with the media input tray guides. Verify that the guides are not adjusted too tightly or too loosely against the paper. Check for broken or missing guides and replace as necessary.

Pages refeed into the ADF.

Cause	Solution
The media is damaged.	Make sure that the media is not folded or torn, and that it meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.

The ADF feeds multiple sheets or jams frequently from the media input tray.

Cause	Solution
The media input tray guides are not adjusted properly.	Remove the document from the media input tray. Straighten the item, then reinsert it. Slide the guides against the sides of the item to center it. Make sure that the guides are not adjusted too tightly.
The media input tray is overfilled.	Remove some of the sheets. The media input tray can hold up to 50 pages, depending on the thickness of the pages.
The item was too thick, too slick, or otherwise did not meet specifications.	Make sure that the media meets specifications detailed in the *HP LaserJet Printer Family Print Media Guide*.
The ADF pickup roller is dirty or worn.	Clean or replace the ADF pickup roller. See To replace the ADF pickup-roller assembly.
The ADF document feed guide is not installed properly.	Ensure that both sides of the ADF document feed guide are snapped in properly.
The ADF pickup roller is damaged or worn.	Replace the ADF pickup roller. See To replace the ADF pickup-roller assembly.
The ADF separation pad is dirty, damaged, or worn.	Replace the ADF separation pad. See ADF separation pad.
The sensor is not operating properly.	Check the sensor to make sure it is not jammed. If a sensor cannot be corrected, replace the ADF assembly.
A problem exists in the ADF path.	Check the path for obstructions. Readjust as necessary or replace the ADF assembly.

Solving problems with digital subscriber line (DSL) connections

A digital subscriber line (DSL) uses digital technology over standard copper phone wires. DSL services rely on an AM signal. The HP LaserJet 3380 all-in-one is a Group 3 fax device, which operates below the DSL capability and is not directly compatible with digital signals. However, if specified during the DSL line setup, the signal on a DSL line can be separated so that some of the bandwidth is used to transmit an analog signal (for voice and fax) while the remaining bandwidth is used to transmit digital data. Split the signal to use both the telephone or fax and the computer on the same line and at the same time.

Note Not all printers and faxes are compatible with DSL services. HP does not guarantee that the HP LaserJet all-in-one product will be compatible with all DSL service lines or providers.

The DSL modem requires a high-pass filter. Sometimes when DSL service is installed, the service provider supplies a splitter, which includes a low-pass filter, for the normal house phone wiring. If not, the user should contact the DSL provider, and request a filter or splitter to enable a fax modem to operate on the line.

Note HP recommends discussing DSL line setup options with the DSL service provider. Consult the DSL provider for technical installation requirements.

Connecting additional devices

Depending on how the phone lines are set up, additional devices can be connected to the phone line along with the HP LaserJet 3380 all-in-one. In general, no more than three devices should be connected to a single phone line. If too many devices are connected to a single phone line, one or more of the devices might not detect an incoming call. If this occurs, disconnect one or more of the devices.

Note This product cannot replace a computer modem. It cannot act as a modem for sending and receiving e-mail, for connecting to the Internet, or for communicating with other computers.

Dedicated fax line

If the product is connected to a phone line that is used only for fax calls, the following devices can be connected:

- Caller ID box
- Modem—An internal or external computer modem can be connected to the fax line if the fax line is to be used for e-mail or access to the Internet. However, faxes might not be sent or received while the line is being used for these purposes.
- Extra phone—An extra phone line can be connected to the fax line if the fax is to be used for making outgoing calls.

Do *not* connect an answering machine or computer voicemail system to the fax line. If the customer uses computer voicemail, connect the external or internal modem to the dedicated phone line. Then, use the dedicated voice line to connect to the Internet and receive voicemail.

Shared phone line

If the product is connected to a phone line that is shared between fax calls and voice calls, or if the phone line has two phone numbers assigned and uses a ring-pattern service, the following devices can be connected:

- Caller ID box
- Modem—An internal or external computer modem can be connected to the fax line if the fax line is to be used for e-mail or access to the Internet. However, faxes might not be sent or received while the line is being used for these purposes.
- Phone—Connect a phone to the shared phone line to make or answer voice calls on the shared line.
- Answering machine or computer voicemail system—Connect these devices to the same phone jack that the product uses in order to make sure that the different devices do not interfere with one another.

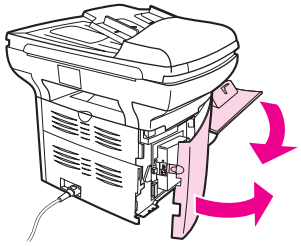
Note It is possible to connect devices to another phone jack for the same phone line (for example, in another room). However, the devices might interfere with faxing and with each other.

To connect additional devices

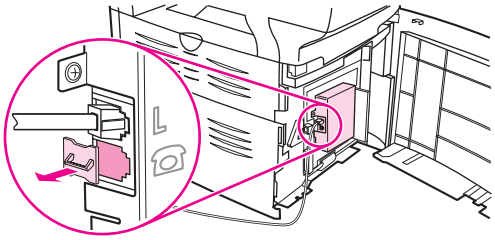
Connect additional devices in the order that is described in the following steps. The output port for each device is connected to the input port of the next device, which forms a "chain." Skip the steps for devices that the customer is not using, and continue to the next device.

Note Do not connect more than three devices to the telephone line.

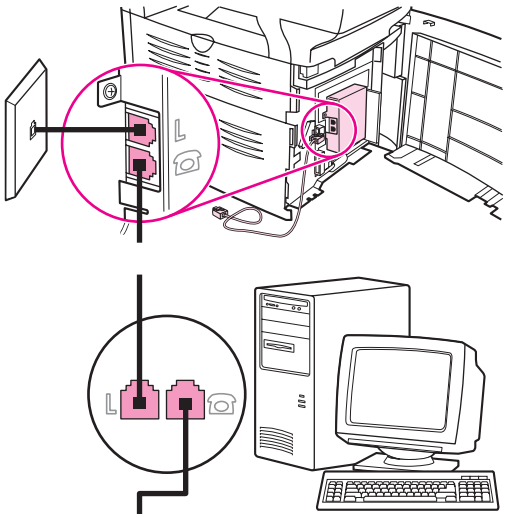
1. Unplug the power cords for all the devices that you want to connect.
2. Make sure that the product is connected to a telephone jack before continuing.
3. Open the print-cartridge door, and then open the left-side cover to reveal the fax ports.



4. Remove the plastic insert from the "telephone" port (the port that is marked with the telephone icon).

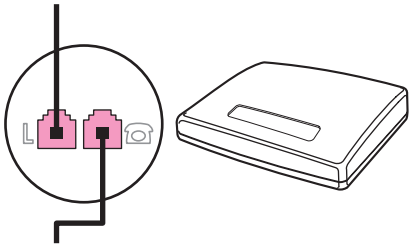


5. To connect an internal or external modem on a computer, plug one end of a telephone cord into the product “telephone” port. Plug the other end of the telephone cord into the modem “line” port.

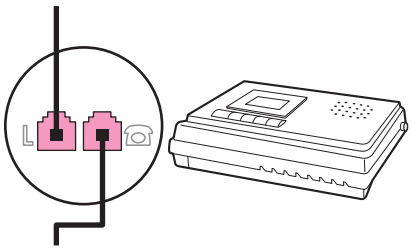


Note Some modems have a second “line” port to connect to a dedicated voice line. If there are two “line” ports, see the modem documentation to verify which port is the correct “line” port.

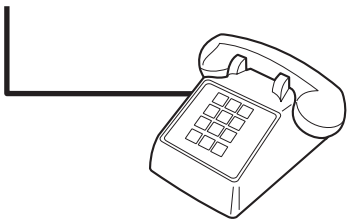
6. To connect a caller-ID box, plug a telephone cord into the previous device's "telephone" port. Plug the other end of the telephone cord into the caller-ID box "line" port.



7. To connect an answering machine, plug a telephone cord into the previous device's "telephone" port. Plug the other end of the telephone cord into the answering machine "line" port.



8. To connect a telephone, plug a telephone cord into the previous device's "telephone" port. Plug the other end of the telephone cord into the telephone "line" port.



9. After connecting additional devices, plug all of the devices into their power sources.
10. Close the left-side cover, and then close the print-cartridge door. When closing the left-side cover, make sure that the fax cords are routed through the upper notch in the cover.

Functional checks

Use the following procedures to help diagnose and solve problems that occur in the print engine.

Engine test

The engine test is used to verify that the print engine is functioning correctly. The formatter is bypassed during an engine test, so the engine test is useful for isolating printer problems. The engine test prints horizontal lines down the entire printable area of a page and is also useful for checking and adjusting registration.

Printing an engine test

The engine test switch is inside the left side door, below the formatter.

To print an engine test, open the left side door and use a *non-conductive* probe to depress the engine test switch. A single test page will print.

CAUTION Use a non-conductive probe to depress the engine test switch. Inserting a conductive probe to depress the switch can damage the product.

Note The formatter must be connected to the ECU in order to perform an engine test. Otherwise, the printer does not print.

You must override the print cartridge door interlock (SW 301). (See Paper-path check.)

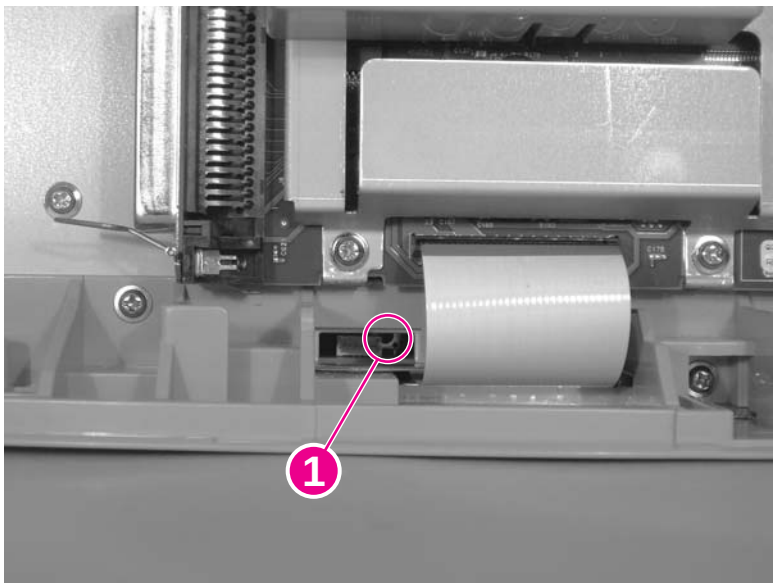


Figure 6-2. **Engine test switch**

Control-panel check

Perform the control-panel check to verify that all the control-panel buttons and LEDs are functioning. If any control-panel button or LED is not functioning, replace the control panel.

To perform the control-panel check

Note Perform this procedure as quickly as possible in order to complete the control-panel check before the formatter begins communicating with the control panel. The control-panel test continues until all of the buttons have been tested or until the formatter attempts to communicate with the control panel (after approximately 40 seconds). The control-panel test will be interrupted if it is not completed before communication occurs.

1. Turn the product power on by using the power switch.
2. Immediately press the > and CANCEL buttons simultaneously.
3. Press and hold down the > and CANCEL buttons until the message **Passed MEM Test** appears on the control-panel display.
4. Release the > and CANCEL buttons.
5. Press the MENU/ENTER button to test the control-panel display LEDs. Continue to press MENU/ENTER until the message **Scroll Check--Press Enter To Pass** appears on the control-panel display.
6. Press MENU/ENTER again.
7. The name of a control-panel button will appear on the control-panel display. Press the corresponding button on the control panel. Repeat this step until all of the control-panel buttons have been tested.

Note The control-panel test continues until all of the buttons have been tested or there is no activity at the control panel for about 20 seconds. After testing all of the control-panel buttons (or when there is no activity at the control panel for about 20 seconds), the product exits the test and continues the startup processes.

Half self-test functional check

The purpose of the half self-test check is to determine which image-formation process is malfunctioning. The image-formation process can be subdivided into the following stages:

- conditioning stage (charges the drum)
- writing stage (writes a latent image to the drum with the laser)
- development stage (forms a toner image on the drum)
- transfer stage (transfers the image to paper)
- separation stage (separates the media from the drum)
- fusing stage (applies heat and pressure to make the image on paper permanent)
- cleaning stage (removes excess toner from the drum)

To perform a half self-test check

1. Print a self-test page. (See Troubleshooting tools.)
2. Open the print cartridge door after the paper advances halfway through the printer (about 5 seconds after the motor begins rotation). The leading edge of the paper should have advanced past the print cartridge.
3. Remove the print cartridge.

4. Open the print cartridge drum shield to view the drum surface. If a dark and distinct toner image is present on the drum surface, assume that the first three functions of the image-formation process are functioning (through the development stage). Troubleshoot the failure as a transfer or fusing problem.

To perform other checks

If, during the half self-test check, no image is present on the photosensitive drum, perform these checks:

1. Make sure that you removed the entire length of the sealing tape from the print cartridge before you installed the cartridge.
2. Perform a drum-rotation functional check. (See Drum-rotation functional check .)
3. Perform a high-voltage power-supply check. (See High-voltage power-supply check.)

Drum-rotation functional check

The photosensitive drum, which is located in the print cartridge, must rotate in order for the print process to work. The photosensitive drum receives its drive from the main drive assembly.

Note This test is especially important if refilled print cartridges have been used.

1. Open the print-cartridge door.
2. Remove the print cartridge.
3. Mark the drive gear on the cartridge with a felt-tipped marker. Note the position of the mark.
4. Install the print cartridge and close the print-cartridge door. The startup sequence should rotate the drum enough to move the mark.
5. Open the print-cartridge door and inspect the gear that was marked in step 3. Verify that the mark moved.

If the mark did not move, inspect the main drive assembly to make sure that it is meshing with the print-cartridge gears. If the drive gears appear functional and the drum does not move, replace the print cartridge.

Heating-element check

Paper passes between the heating element and a soft pressure roller to fuse toner to the paper.

1. Unplug the product for at least ten minutes. Remove the right cover (see Printer right-side cover) and back cover (see Back cover).
2. Verify that the thermistor connector is seated into both the product chassis and the ECU.
3. Unplug the fuser cable connector (callout 1) by pressing and releasing the tab on the back of the connector. To measure the continuity of the heating element, measure the resistance between the two pins at the end of the cable.

Note Normal resistance is 25 ohms +/- 10 ohms for the 110 V product and 80 ohms +/- 20 ohms for the 220 V product.

If no resistance is measured, replace the fuser.

4. Remove the thermistor connector (callout 2), and measure the resistance between J206 pins one and two and between J206 pins three and four.

Note Normal resistance between both pairs of pins is 370 K ohms +/- 50 K ohms at 20° C (68° F).

If no resistance is measured, replace the fuser.

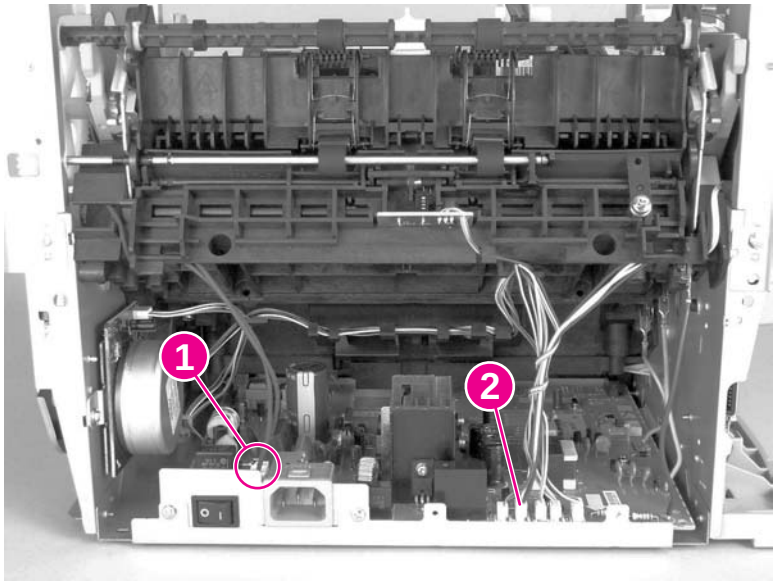


Figure 6-3. **Locating connectors for the heating-element check**

High-voltage power-supply check

The high-voltage power-supply PCA provides the necessary voltages for the image-formation processes.

To check the print-cartridge connection points

Turn the print cartridge over and visually inspect the three connection points on the ends of the print cartridge: one on the right side (callout 1), and two on the left side (callout 2). If they are dirty or corroded, clean the connection. If they are damaged, replace the print cartridge.

Note One of the connection points on the left side is underneath the print-cartridge shutter.

Note Use only isopropyl alcohol to clean the connections.

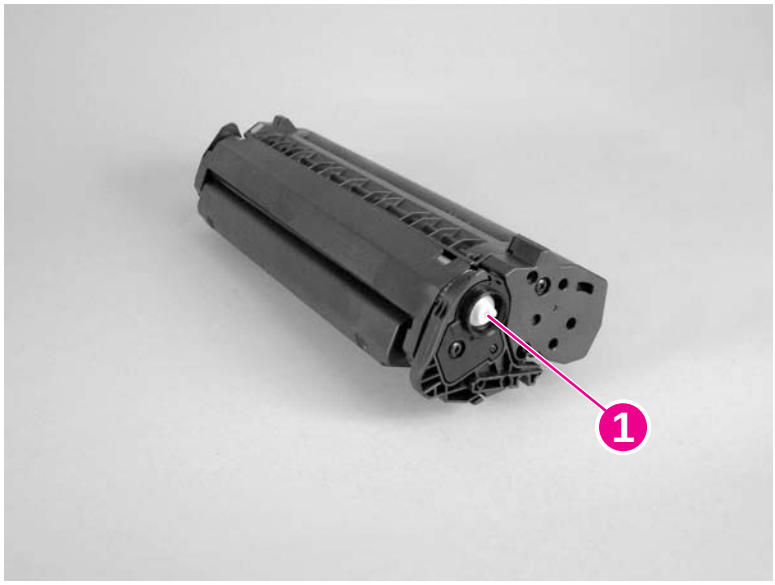


Figure 6-4. **Print cartridge high-voltage connection points (right side)**

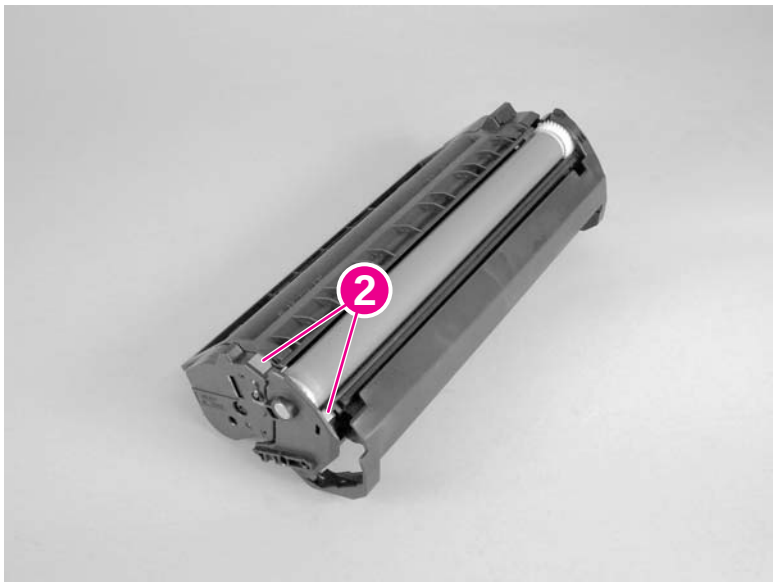


Figure 6-5. **Print cartridge high-voltage connection points (left side)**

To check the high-voltage connector assembly

The assembly uses three spring-loaded pins to contact the print cartridge: drum ground (callout 1), charging (callout 2), and developing roller (callout 3). Verify that the pins are not dirty or corroded and that the spring-loading action is functional. If the pins are dirty, clean them using isopropyl alcohol only. If they are damaged, replace the high-voltage connector assembly.

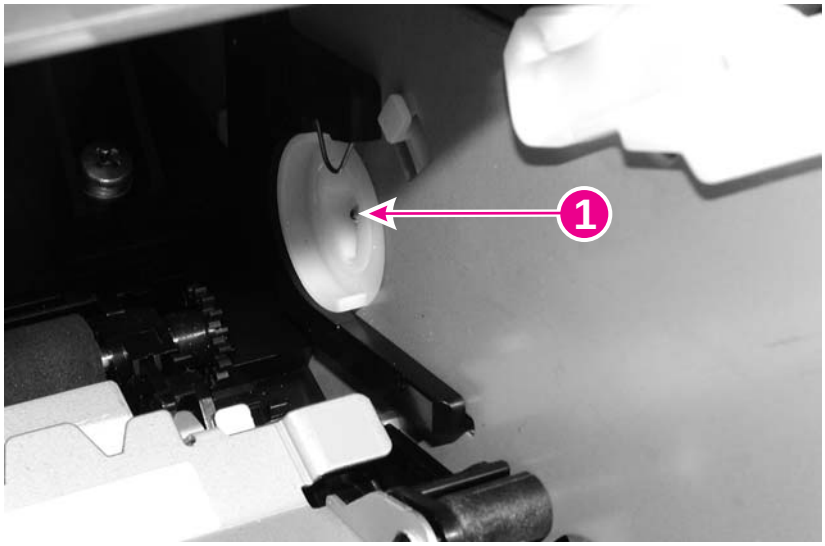


Figure 6-6. **High-voltage connector assembly (right side)**

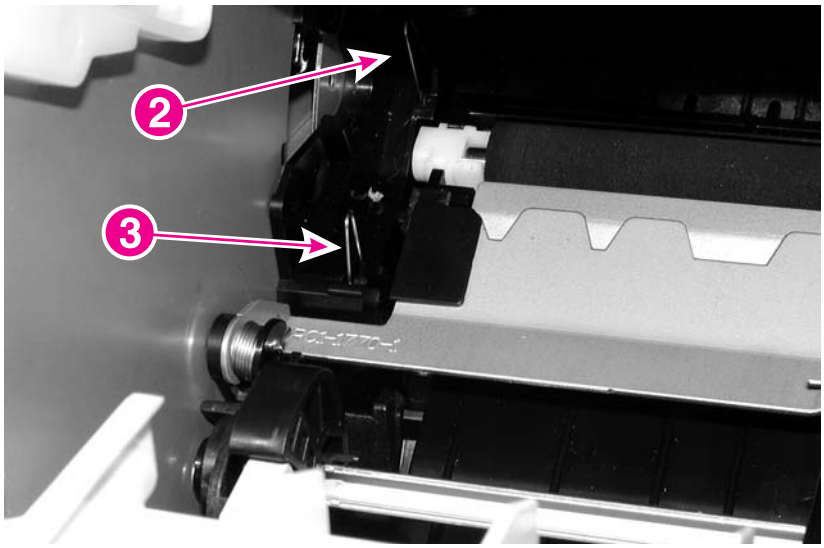


Figure 6-7. **High-voltage connector assembly (left side)**

Paper-path check

If media is not being picked up or is not moving through the paper path, you might want to observe all of the paper-motion activities. Overriding the door interlock (SW301) allows you to observe these activities:

- motor rotation
- solenoid action
- kick-plate motion

- paper pickup-roller motion
- drive-roller, transfer-roller, fuser-roller and gear, and delivery-roller motion

To override SW301

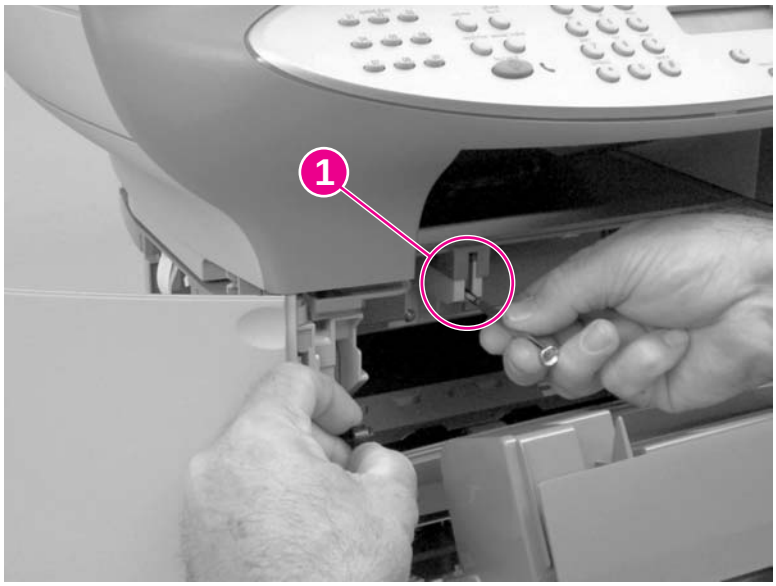


Figure 6-8. **Overriding SW301**

1. Open the left-side door and the print-cartridge door. Disengage the two print-cartridge door arms.
2. Install the print cartridge, which will press SW301.
3. Press down the laser/scanner interlock switch (callout 1) on the laser/scanner.
4. While SW301 and the laser/scanner interlock are engaged, perform an engine test or self-test to observe paper motion. See Engine test and Half self-test functional check.

Updating or recovering the firmware code

The product has a flash-memory-based formatter that enables the firmware code to be updated in the event that new firmware is released for the product. Using flash memory also provides a way to recover the firmware in the event of code corruption or failure.

Firmware update by using flash executable

The configuration page lists the firmware version of the product. On flash-memory-based products, you can update the firmware code by downloading the latest flash executable for the product and running the program according to the readme instructions that come with it. Turn the printer off and then on before running the executable file. If the firmware becomes corrupted or fails (usually because of an interruption when attempting to update the firmware), the product no longer functions. In this case, a firmware-recovery DIMM is available from HP.

Firmware-recovery DIMM

A firmware-recovery DIMM can be obtained from HP in the rare event that the firmware in flash memory becomes corrupted. When the DIMM is installed in the DIMM slot on the formatter and the product is turned on, the DIMM loads the latest firmware code into the product.

To use the firmware-recovery DIMM

1. Order a firmware-recovery DIMM (RDIMM) from HP. Retain the return mailer.
2. Turn off the product.
3. Open the left-side door, and install the firmware-recovery DIMM into the DIMM slot (callout 1).

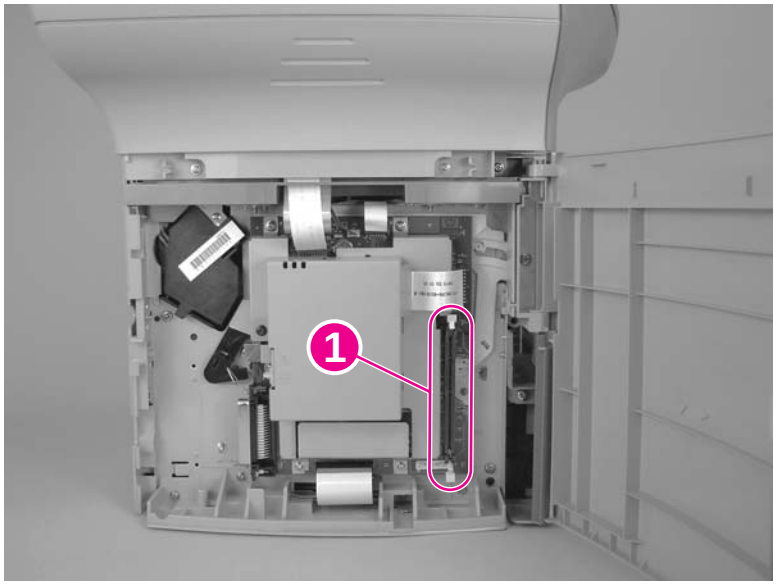


Figure 6-9. **Using the firmware-recovery DIMM**

4. Turn on the product. The firmware-recovery DIMM takes a few minutes to automatically restore both blocks of firmware code. Wait until the message **Complete** appears on the control-panel display.

5. Turn off the product and remove the recovery DIMM.
6. Turn on the product. It should start up normally.
7. Use the provided packaging to return the recovery DIMM to HP.

Troubleshooting tools

Use the control panel to print configuration reports and demonstration pages. The configuration report shows the settings that have been selected from the control panel. Printing a configuration report is also considered a "self test" for the printer, although any of the reports can serve this purpose. A printout of the control-panel menu structure is a useful reference if you alter settings in the menu.

Printing a configuration report, demonstration page, or menu structure

1. Press MENU/ENTER.
2. Use the < or > button to select **Reports** and then press MENU/ENTER.
3. Use the < or > button to select either **Config report**, **Demo Page**, or **Menu Structure** and then press MENU/ENTER. The product exits the Menu settings and prints the report.

Printing all fax reports at once

To print all fax reports at once:

1. Press MENU/ENTER.
2. Use the < or > button to select **Reports** and then press MENU/ENTER.
3. Use the < or > button to select **All fax reports** and then press MENU/ENTER. The product exits the Menu settings and prints the reports.

When you print all reports at once, the following reports are printed:

- Fax activity log—recent faxes sent and received, and their status
- Billing log (if enabled)—sorted by billing code
- Block fax list (if enabled)—fax numbers you have blocked
- Usage report—pages printed, copied, scanned, or faxed
- Configuration report—current control-panel settings, including the following sections:
  - System information
  - Reports
  - Fax settings
  - User defaults
  - Service
  - Page counts
- Speed-dial report—one-touch, speed-dial, and group-dial report

T.30 protocol trace

Use a T.30 protocol trace report to troubleshoot fax transmission issues.

To print a T.30 protocol trace report

1. Press MENU/ENTER.

2. Use the < or > button to select **Service** and then press MENU/ENTER.
3. Use the < or > button to select **Print T.30 trace** and then press MENU/ENTER.
4. Use the < or > button to select **Now** and then press MENU/ENTER. The product exits the Menu settings and prints the reports.

Send a fax from the product or receive a fax to the product from another fax machine. Print a T.30 trace report after the fax prints.

Explanations of some of the report column headings follow:

- **Date** and **Time** identify when the fax begins. Match this information with the fax log of errors.
- **Type** is the type of fax activity: send or receive.
- **Identification** is the phone number to which a fax is sent.
- **Result** explains the status of the fax:
  - "OK" means that the fax was successful.
  - "Pending" faxes are in memory or are printing.
  - For error codes and their meanings, see Table 6-4. Fax receive codes and Table 6-5. Fax send codes.

Fax error-correction mode (ECM)

Normally, the product monitors the signals on the telephone line while it is sending or receiving a fax. If the product detects an error during the transmission and the error-correction mode is **On**, the product can request that the portion of the fax be resent. The factory-set default for error-correction mode is **On**.

To change the error-correction setting

1. Press MENU/ENTER.
2. Use the < or > button to select **Fax setup**, and then press MENU/ENTER.
3. Use the < or > button to select **All faxes**, and then press MENU/ENTER.
4. Use the < or > button to select **Error correction**, and then press MENU/ENTER.
5. Use the < or > button to select **On** or **Off**, and then press MENU/ENTER to save the selection.

V.34 fax standard

V.34 is the industry-wide fax standard for full-duplex modems that transmit at speeds up to 28,000 bps. When V.34 is turned on, the product automatically adjusts the transmission speed based on the clarity of the image. Turning V.34 off can resolve some fax transmission issues.

To change the V.34 setting

1. Press MENU/ENTER.
2. Use the < or > button to select **Fax setup**, and then press MENU/ENTER.
3. Use the < or > button to select **All faxes**, and then press MENU/ENTER.
4. Use the < or > button to select **V.34**, and then press MENU/ENTER.
5. Use the < or > button to select **On** or **Off**, and then press MENU/ENTER to save the selection.

Fax receive and fax send codes

The following tables list the fax receive and fax send codes that appear in the fax activity log. To print a fax activity log, press MENU/ENTER, press < or > to select **Reports**, and then select **Print log now**.

Table 6-4. Fax receive codes

Code	Description	Recommended action
200	The fax session has been completed without errors.	None required.
221	The user has pressed CANCEL, which caused the fax session to be prematurely halted.	Allow the product to receive the fax.
222	The product has answered a call but has been unable to detect the presence of a fax machine. Typically, this is caused by the product answering a voice call. -Or- The remote user canceled the fax transmission by pressing CANCEL immediately before, or just as, the product answered the call. -Or- The remote machine automatically ended the call immediately before, or just as, the product answered the call. -Or- The remote (calling) fax machine identified a feature incompatibility between the two machines and disconnected immediately before transmitting any additional fax tones or T.30 frames. (This is a very rare and non-standard behavior.)	1. Confirm that the remote caller is a fax machine and not a voice call. (Typically the remote user must inform the caller that the fax session failed.) 2. If the remote machine ends the call just as the product starts receiving, reduce the ring count after which the product answers. Or, suggest that the remote user manually dial to the product and then manually start the fax session by pressing START after fax tones have been heard from the product. 3. Confirm that the remote user is not inadvertently attempting a poll transmission from the product instead of transmitting to the product. 4. Reconfigure the local fax machine to use different configuration settings, change ECM to the opposite of the current setting, and/or select a slower reception speed.
223 (ECM error)	The product has been unable to receive an entire page even after multiple attempts to receive the parts of the page that contain errors. This is usually caused by extremely poor line conditions.	Attempt to receive the fax again after telephone-line conditions have improved. -Or- Set the ECM to **Off**. Errors might still occur, which might result in degraded image quality on the received page. However, the ability to receive the entire document will be improved.

Table 6-4. Fax receive codes (continued)

Code	Description	Recommended action
224	The product has received one or more pages that contain excessive errors. This is usually caused by extremely poor line conditions. Because the ECM is not used during this session, errors are not corrected. Some non-HP machines might try to resend the failed pages, but it is impossible to determine from the resent pages if the problems with the previously received pages have been corrected.	Attempt to receive the fax again after telephone-line conditions have improved.
225	The remote machine has attempted to initiate a remote diagnostic session with this machine, even though remote diagnostic access is locally disabled.	Enable the remote diagnostics capability on the product.
226	The remote machine has attempted to initiate a remote diagnostic session with this machine, but the remote diagnostic versions that the two machines support are incompatible.	None. Remote diagnostics cannot occur between machines that have incompatible remote diagnostic versions.
227	The remote machine has attempted to initiate a fax session at a speed and modulation that the product does not support.	Reconfigure the product to receive at a slower speed.
228	The remote machine has attempted to initiate a poll transmission from the product even though the product is not configured for poll transmission.	1. Confirm that the remote user intends to use polling. The remote user might have inadvertently attempted to poll. If this is the case, reattempt a normal transmission from the remote machine. 2. If the remote user intended to use polling, confirm that the product was correctly configured for poll transmission.
229	The remote machine has attempted to initiate a secure poll transmission from the product but has not provided a valid password.	Confirm that the remote user is the person for whom the polled document is intended. If so, make sure that the remote user has the correct password and that the product is configured with the same password.
230	The remote machine has attempted to initiate an operation that requires error correction but has not selected error correction for the session.	Enable the ECM on both the product and the remote machine.
231	The remote machine has attempted to initiate a transmission to the product even though the ability to receive is disabled at the product.	Ensure that the product is capable of receiving a document. Check that paper is correctly loaded, paper is not jammed within the machine, and any other system abnormalities have been cleared.

Table 6-4. Fax receive codes (continued)

Code	Description	Recommended action
232 233 234 235 (ECM error) 236 (ECM error) 237	A communication failure has occurred between the two machines. -Or- The user at the remote machine might have pressed CANCEL. -Or- The power at the remote machine has been interrupted or deliberately turned off, causing the fax session to be interrupted.	1. Attempt to receive the fax again after telephone-line conditions have improved. 2. If the error persists, and error correction is in use for the fax session, disable the ECM.
238 239 (ECM error) 240 (ECM error) 241 (ECM error)	The remote fax machine sent an unexpected communication.	None. This is a defect in the remote sending machine.
242	The remote fax machine is attempting to receive instead of send. Both machines have attempted to start receiving at the same time. It is possible to accidentally initiate a fax reception after dialing on many machines, if there is no paper in the machine, or if the paper is not correctly loaded and cannot be sensed by the appropriate document sensor.	Ensure that a document is ready and is correctly loaded in the transmitting fax machine and that the remote machine is attempting to transmit and not to receive.
243 244	The user of the remote machine has pressed the Stop button on that machine, which caused the session to be prematurely terminated. -Or- The remote fax machine identified a feature incompatibility between the two machines and has terminated the session. For example, the product tried to initiate polling, but the remote machine did not support this mode of operation.	1. Confirm that the remote user is not inadvertently attempting a poll transmission from the product, instead of transmitting to the product. This mode of operation must be specially configured on the product. If poll transmission from the product is the appropriate mode of operation, confirm that the product has been configured for this operation. 2. Reconfigure the local fax machine to use different configuration settings, change the ECM setting to the opposite of the current setting, or select a slower reception speed.

Table 6-4. Fax receive codes (continued)

Code	Description	Recommended action
245 246 (ECM error)	The user of the remote machine has pressed the Stop button on that machine, which caused the session to be prematurely terminated. The product has been “holding off” the remote machine during reception of a large or complex document because the remote machine lacks available memory. This hold-off time has exceeded the timeout (typically 60 seconds) that the remote machine uses, and the remote machine has terminated the session.	1. If the document was large, ask the remote user to retransmit the document as two or more smaller documents. 2. Disable ECM and attempt to receive the fax again.
247 - 251	The remote machine is apparently stuck in the “on” mode.	None.
252	Telephone-line conditions were too poor to receive a fax.	1. Attempt to receive the fax again after telephone-line conditions have improved. 2. Configure the machine to start receiving at a lower speed. 3. If the product successfully received several pages of a larger document, ask the remote user to transmit the document in several smaller parts.
253	The remote machine has attempted to initiate a page transmission using a page width that is not supported by the product.	Ask the remote user to reconfigure the remote machine to transmit using a “normal” (letter/A4) page width.
281	The product has not received any data at the start of a page during non-ECM reception although the modem has not detected a remote disconnect. The remote machine is probably transmitting fill bytes instead of data, and is either broken or jammed.	Ask the remote user to check his or her machine, and then ask the remote user to send the fax again.
282	The product has not received any data at the start of a page during ECM reception although the modem has not detected a remote disconnect. The remote machine is probably transmitting sync frames instead of data, and is either broken or jammed.	Ask the remote user to check his or her machine, and then ask the remote user to send the fax again.
283	The product has detected that the modem carrier has stopped. Either the line has been disconnected or the remote machine has aborted the transmission.	Ask the remote user to check his or her machine, and then ask the remote user to send the fax again.

Table 6-4. Fax receive codes (continued)

Code	Description	Recommended action
284	The product has not received any data during non-ECM page reception and a timeout failure has occurred. The remote machine is probably transmitting fill bytes instead of data, and is either broken or jammed.	Ask the remote user to check his or her machine, and then ask the remote user to send the fax again.
285	The product has stopped receiving any data during an ECM page reception although the modem has not detected a remote disconnect. The remote machine is probably transmitting sync frames instead of data, and is either broken or jammed.	Ask the remote user to check his or her machine, and then ask the remote user to send the fax again.
286	The remote machine has transmitted invalid data. The product has received frames with errors during an ECM reception and requested retransmission of the failed frames. The data that is resent does not correspond to the data that was requested. This is an implementation error from the remote machine.	Disable ECM, and ask the remote user to send the fax again.
290	Between pages, the remote machine has attempted to renegotiate the session mode from ECM to non-ECM. This operation is not supported, and the session has been abandoned.	Ask the remote user to send the fax again, and to split the document into two portions: the ECM and non-ECM portions. Some machines will attempt to use non-ECM for photo mode, so this might be associated with a between-page encoding change to support photo mode.
291	This is not a communication error, and it is not expected that this error will occur under non-development scenarios. Reception has failed because the local unit is unable to open to receive data. This error might be associated with low memory, although low memory should not produce the error unless other conditions are contributing to the problem.	If the error persists, turn the product off and then on again.
292	The remote machine has attempted to renegotiate the encoding mode from non-JPEG to JPEG. This operation is not supported, and the session has been abandoned.	Ask the remote user to send the fax again, and to split the document into two portions: the JPEG and non-JPEG portions. Some machines will attempt to use JPEG for photo mode, so this might be associated with a between-page encoding change to support photo mode.

Table 6-5. Fax send codes

Code	Description	Recommended action
300	The fax session has been completed without errors.	None required.
311	The user has pressed the STOP button, which caused the session to be prematurely halted before all pages have been transmitted.	None required.
312	A remote fax device has failed to answer the call. Specifically, fax tones or the fax handshake from a remote machine has not been detected. Typically this is caused by the user calling the wrong number, or when the correct number has been called but the machine has been configured not to answer, or when the remote machine has been temporarily disabled because of a condition such as a lack of paper or a jam.	Confirm that the remote fax machine is ready to receive a document, and attempt to send the fax again.
313	A busy signal has been detected each time that the product has attempted to call the remote machine.	Attempt to send the fax again when the line is no longer busy.
314	The product has attempted to initiate a remote diagnostic session but has detected that remote diagnostics are disabled at the remote machine.	Ask the remote user to enable remote diagnostics on the remote machine.
315	The product has attempted to initiate a remote diagnostic session but has detected that the remote diagnostic version supported by the remote machine is incompatible.	No solution. Remote diagnostics cannot occur between machines that have incompatible remote diagnostic versions.
316	The product is set up to initiate document transmission, but it has detected that the remote machine is not able to receive a document. This error should be rare because a remote machine normally will not answer if it cannot receive a document. An exception is if the remote machine is configured for poll transmission but is unable to receive.	Configure the remote machine for reception. Typically the remote user configures the remote machine, which can include loading paper, clearing jams, and clearing other system abnormalities.
317	The remote machine cannot support a fax reception at any speed or modulation that the product supports.	None.
318	The remote machine cannot support a fax reception at the page width that the product selected.	None.

Table 6-5. Fax send codes (continued)

Code	Description	Recommended action
319	The product has attempted to initiate a binary file transfer (BFT) but has detected that the remote machine does not support this mode of operation.	1. Ask the remote user to enable the BFT capability on the remote machine if it is supported. 2. Retransmit the document as a normal fax, rather than attempting a BFT transfer.
320	The product is set up to initiate poll reception with a remote machine, but it has detected that the remote machine is not configured to do this. Poll transmission from a remote machine is typically configured on a session-by-session basis.	Confirm that the local user wants to attempt a poll reception. If not, reconfigure the product for a normal fax transmission. -Or- Configure the remote machine for poll transmission. The remote user must first load a document to transmit and then configure the machine for polling.
321	A communication error with the receiving fax machine was caused by poor telephone-line conditions.	Attempt to send the fax again when telephone-line conditions have improved.
322 - 324	Telephone-line conditions are too poor to send a fax.	1. Attempt to send the fax again when telephone-line conditions have improved. 2. If the session fails after transmitting several pages of a large document, retransmit the document as several smaller documents.
325 - 328 (ECM error)	Telephone-line conditions are poor.	Attempt to send the fax again when telephone-line conditions have improved. -Or- Disable ECM. Errors might still occur, and might result in a degraded image quality on the received page. However, the ability to transmit the entire document will be improved.
329 - 331	The remote machine has reported that one or more pages have been received (while ECM was off) with excessive errors. This error does not result in the session being terminated immediately. Subsequent page transmission can still occur, and later pages might be received without error.	Attempt to send the fax again when telephone-line conditions have improved. -Or- Select a lower speed for the initial transmission speed.
332 - 343	A defect exists in the remote fax machine.	Send to or receive from another fax machine.

Table 6-5. Fax send codes (continued)

Code	Description	Recommended action
344 - 348 349-353 (ECM error) 354-355	The remote machine has failed to respond to a fax command from the product because the connection is interrupted. -Or- The remote user has pressed the Stop button while the remote machine was receiving. -Or- Under rare conditions, incompatibility between the two machines can cause the remote machine to simply abandon the call.	1. Attempt to send the fax again when telephone-line conditions have improved. 2. If the fax session was using error correction, disable ECM.
356 - 361 362-366 (ECM error)	The remote user has pressed the Stop button, which caused the session to be aborted. -Or- The remote machine has encountered a system problem (such as no paper or a jam), which has inhibited it from receiving any more pages, and which has caused it to terminate the session prematurely. -Or- The remote machine has encountered a feature incompatibility, which caused it to terminate the session.	1. Configure the remote machine for document reception by clearing any paper jams, loading sufficient paper, and clearing any other system errors. 2. Configure the local fax machine to use different configurations, toggle the ECM state, or select a slower reception speed.
367 - 372 373-377 (ECM error) 378-379	The remote machine is apparently stuck in the “on” mode.	None.
380	The remote machine has failed to issue a valid response to a CTC frame. This occurs during ECM transmission after multiple retransmissions of erroneous data.	None; a defect exists in the remote machine.
381	The remote machine has failed to respond to a fax command from the product because the connection is interrupted. -Or- The remote user has pressed the Stop button while the remote machine was receiving.	1. Attempt to send the fax again when telephone-line conditions have improved. 2. Disable ECM.

Table 6-5. Fax send codes (continued)

Code	Description	Recommended action
382	The remote fax machine has been “holding off” the local fax machine from continuing the ongoing transmission because of a temporary low-memory condition at the remote machine. If this “hold-off” period exceeds a machine's specific timeout value, the session is terminated.	Resend the document as two or more separate fax transmissions. Wait several minutes between the end of one transmission and the start of the next transmission. -Or- Disable ECM.
383	The remote machine has failed to respond to a fax command from the product because the connection was interrupted. -Or- The remote user has pressed the Stop button while the remote machine was receiving.	Attempt to send the fax again when telephone-line conditions have improved -Or- Disable ECM.
384	The product has attempted a black JPEG transmission to a machine that does not support this mode.	Use a different mode, and attempt to send the fax again.
386	The product has failed to complete phase 3 of the initial V.34 handshake after originating a fax session. This is usually caused by poor line conditions, although it might be a compatibility issue with certain machines or line conditions.	1. Attempt to send the fax again when telephone-line conditions have improved. 2. Disable V.34 on the product and attempt the transmission with the V.17 mode.
387	The product has failed to successfully negotiate the initial V.8 handshake with the remote machine after originating a fax session. Typically, this occurs when the remote machine is not fax-capable or has disabled reception. It might also be a compatibility issue with certain machines or line conditions.	1. Attempt to send the fax again when telephone-line conditions have improved. 2. Disable V.34 on the product and attempt the transmission using the V.17 mode.
388	The product has originated a fax session and detected a remote fax machine but has been unable to detect any T30 frames. If the machine is in V.17 mode, the connection probably has been interrupted. In V.34 mode, this error might also occur because of compatibility problems with certain machines or line conditions.	1. Attempt to send the fax again when telephone-line conditions have improved. 2. Disable V.34 on the product and attempt the transmission with the V.17 mode.
389	The product has originated a fax session and has reattempted V.8 negotiations multiple times without success.	1. Attempt to send the fax again when telephone-line conditions have improved. 2. Disable V.34 on the product and attempt the transmission with the V.17 mode.

Table 6-5. Fax send codes (continued)

Code	Description	Recommended action
390	The product has originated a fax session while using error correction (either V.34 or V.17). Transmission of an image has been abandoned after a timeout when no data has become ready for transmission. This is most likely caused by a low-memory condition, although it could be caused by other internal problems that cause data generation for transmission to stall.	Attempt to send the fax again after making sure that documents stored in memory are printed, and that the unit has paper ready for printing. If the problem persists, reinitialize permanent storage.
391	The product has originated a fax session without error correction (not V.34). Transmission of an image has been abandoned after a timeout when no data has become ready for transmission. This is most likely caused by a low-memory condition, although it could be caused by other internal problems that stall the data generation for transmission.	Attempt to send the fax again after making sure that documents that are stored in memory are printed, and that the unit has paper ready for printing. If the problem persists, reinitialize permanent storage.
392	The product has answered a fax session and completed the initial V.34 handshake but has been unable to detect any T.30 frames. This failure is caused by either compatibility problems with certain machines or line conditions.	1. Ask the remote user to send the fax again when telephone-line conditions have improved. 2. Disable V.34 on the product and attempt the transmission with the V.17 mode.
393	The product has failed to complete phase 3 of the initial V.34 handshake after answering a fax session. This is usually caused by poor line conditions, although it might be a compatibility issue with certain machines or line conditions.	1. Ask the remote user to send the fax again when telephone-line conditions have improved. 2. Disable V.34 on the product and attempt the transmission with the V.17 mode.
394	The product has failed to successfully negotiate the initial V.8 handshake with the remote machine after answering a fax session. Typically, this occurs when the calling machine is not fax-capable. It might also be a compatibility issue with certain machines or line conditions.	1. Ask the remote user to send the fax again when telephone-line conditions have improved. 2. Disable V.34 on the product and attempt the transmission with the V.17 mode.
395	An unexpected T.30 frame has been received between pages during a multipage V.34 reception. This is almost certainly a compatibility problem with the remote machine, and might be caused by an error with the implementation of the remote machine.	1. Ask the remote user to send the fax again when telephone-line conditions have improved. 2. Disable V.34 on the product and attempt the transmission with the V.17 mode.

Table 6-5. Fax send codes (continued)

Code	Description	Recommended action
396-409	An error occurred during a V.34 transmission when the product was unable to correctly complete the handshake with the remote machine and was consequently unable to transmit a T.30 frame. This occurs when the line was disconnected or if line conditions degrade during the session.	Attempt to receive the fax again when telephone-line conditions have improved.
410-419	An error occurred during a V.34 reception when the product was unable to correctly complete the handshake with the remote machine and was consequently unable to transmit a T.30 frame. This occurs when the line is disconnected or if line conditions degrade during the session.	Attempt to receive the fax again when telephone-line conditions have improved.
420	V.34 negotiations have failed from the originating machine during phase 4. Phase 4 occurs after V.8 and before the first T.30 frames are exchanged. These compatibility problems have been observed when sending to non-HP units.	Attempt to receive the fax again when telephone-line conditions have improved.
421	V.34 negotiations have failed from the originating machine during phase 3. Phase 3 occurs after V.8, before phase 4, and before the first T.30 frames are exchanged. These compatibility problems have been observed when sending to non-HP units.	Attempt to receive the fax again when telephone-line conditions have improved.
422	V.34 negotiations have failed from the answering machine during phase 4. Phase 4 occurs after V.8 and before the first T.30 frames are exchanged.	Ask the remote user to send the fax again when telephone-line conditions have improved.
423	V.34 negotiations have failed from the answering machine during phase 3. Phase 3 occurs after V.8, before phase 4, and before the first T.30 frames are exchanged.	Ask the remote user to send the fax again when telephone-line conditions have improved.
430	The transmitting machine is unable to send continuous "ones" at the end of the control channel before starting the primary channel. This is a V.34 error. This error might be associated with line conditions, although it is more likely to be caused by internal modem problems.	Ask the remote user to send the fax again when telephone-line conditions have improved.

Table 6-5. Fax send codes (continued)

Code	Description	Recommended action
431	The transmitting machine has not received a response after aborting a transmission. Depending upon when the session is aborted, some remote machines might not respond. The product always attempts to abort the session in such a way that the remote machine can respond to the final PPS_EOP.	No action required. The session was aborted.
440-444	An error occurred during a V.34 transmission after one or more partial pages (image data) were transmitted through the primary channel. The transmitting machine was unable to restart the control channel in order to resume the T.30 handshake. This typically occurs when the receiving machine prematurely disconnects while receiving a partial page, although the problem can be caused by compatibility issues.	Attempt to receive the fax again when telephone-line conditions have improved.

Translating the fax trace report

Print a fax log report. The fax log report contains information about the product's interpretation of the problem.

Read the time sequences, looking for abnormal activity on the fax trace report. See Table 6-6. Fax phase sequence, and Table 6-7. Appropriate responses, to separate normal from abnormal activity. Fax abbreviations appear in Table 6-8. Fax abbreviations.

Identify the phase in which the error occurred.

Note

??? represents an unidentified command.

Examples of a successfully sent fax and a successfully received fax appear after the tables.

Table 6-6. Fax phase sequence

Sequence	Calling station	Called station
Phase A—Call setup sequence		
1	Ring signal	
2	CNG tone beep, 1100 Hz for 1 second	
3		Transmit CED, 2100 Hz for 3 seconds
4		Transmit NSF
5		Transmit CSI
6		Transmit DIS

Table 6-6. Fax phase sequence (continued)

Sequence	Calling station	Called station
7	DIS detected	
Phase B—Pre-message procedure (negotiate compatible format/protocol)		
8	Transmit TSI	
9	Transmit DCS, select mode	
10		DCS detected
11	Transmit TCF/training	
12	Transmit FSK	
13		Training (synchronize signals), check for errors
14		Transmit CFR
15	Detect CFR	
Phase C—Message transmission (page/scan transmission)		
16	Transmit message (FSK, followed by date)	
17		Receive message (SCAN), check for errors
18	Transmit FSK	
19	At end of message, send one of the following: • EOM • EOP • MPS • PRI-Q • PPS-NULL • PPS-MPS • PPS-EOM • PPS-EOP • PPS-PRI-Q	
Phase D—Post-message transmission (next page/end of transmission)		
20		Detect EOM, EOP, MPS, PRI-Q, PPS-NULL, PPS-MPS, PPS-EOM, PPS-EOP, or PPS-PRI-Q
21		Transmit MCF response to confirmation signals of post-message responses
Phase E—Call release (hangup sequence)		
21	Transmit DCN	
22		Station hangs up

Table 6-7. Appropriate responses

Commands	Comments	Appropriate responses
(NSF) (CSI) DIS	Identifying capabilities: from a manual receiver or an auto-answer unit	(NSC) (CIG) DTC (TSI) DCS (NSF) (CSI) DIS (CRP) (TSI) (NSS) (PWD) (SEP) (CIG) DTC (PWD) (SUB) (TSI) DCS
(NSC) (CIG) DTC	Mode-setting command: from calling unit	(TSI) DCS (NSF) (CSI) DIS
(PWD) (SEP) (CIG) DTC	Poll operation	(CRP) (TSI) (NSS)
(TSI) DCS (TSI) (NSS)	Mode-setting command: from manual transmitter or automatic receiver	CFR FTT (NSC) (CIG) DTC
(PWD (SUB) (TSI) DCS	Command is always followed by phasing/training	(NSC) (CIG) DTC
CTC	Mode-setting command: from the transmitter to the receiver	(CTR) (CRP)
(EOR-NULL)	Indicates the next block transmission from the transmitter to the receiver	(ERR) (RNR) (CRP)
Any one of the following: • (EOR-EOP) • (EOR-EOM) • (EOR-PRI-MPS) • (EOR-PRI-EOP) • (EOR-PRI-EOM)	The receiver	(ERR) (RNR) PIN (CRP)
Any one of the following: • MPS • EOP • EOM • (PRI-MPS) • (PRI-EOP) • (PRI-EOM)	Post-message commands	MCF RTP RTN PIP PIN (CRP)
(PPS-NULL)	Post-message command for a partial page from the transmitter to the receiver	(PPR) MCF (RNR) (CRP)

Table 6-7. Appropriate responses (continued)

Commands	Comments	Appropriate responses
Any one of the following: • (PPS-MPS) • (PPS-EOP) • (PPS-EOM) • (PPS-PRI-MPS) • (PPS-PRI-EOP) • (PPS-PRI-EOM)	Post-message commands for a complete page from the transmitter to the receiver	(PPR) MCF (RNR) PIP PIN (CRP)
(RR)	Ask for the status of the receiver: from the transmitter to the receiver	(RNR) (ERR) MCF PIP PIN (CRP)
DCN	Phase E command	None

Table 6-8. Fax abbreviations

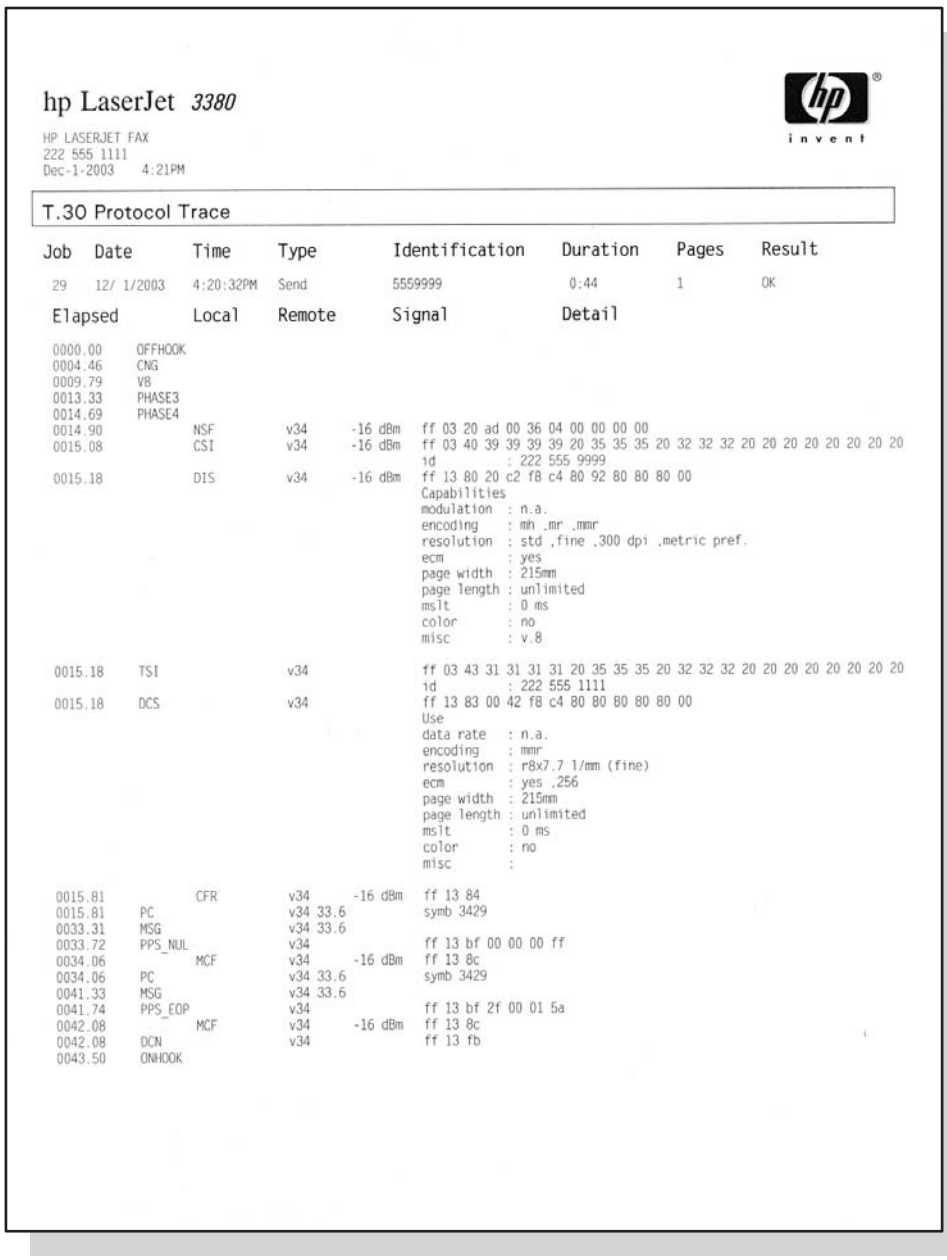
Abbreviation	Function	Signal format (“X”= any #)
CED	Called station identification	2100 Hz
CFR	Confirmation to receive	X010 0001 1850 or 1650 Hz for 3 seconds
CIG	Calling subscriber identification	1000 0010
CNG	Calling tone	1100 Hz for 500 ms
CRP	Command repeat	X101 1000
CSI	Called subscriber identification	0000 0010
CTC	Continue to correct	X100 1000
CTR	Response to continue to correct	X010 0011
dBM	-dBM signal strength detected from sending station (number is deviation from average value)	Range in -7.5 to -43
DCN	Disconnect	X101 1111
DCS	Digital command signal	X100 0001
DIS	Digital identification signal	0000 0001
DTC	Digital transmit command	1000 0001
EOM	End of message	X111 0001 1100 Hz
EOP	End of procedure	X111 0100

Table 6-8. Fax abbreviations (continued)

Abbreviation	Function	Signal format (“X”= any #)
EOR	End of retransmission	X111 0011
EQM	Eye quality monitor—a measure of the modem signal quality, lower numbers indicate better signals	0-99
ERR	Response for end of retransmission	X011 1000
ECD	Facsimile coded date	0110 0000
FCF	Facsimile	
FCS	Frame check sequence	
FDM	File diagnostics message	X011 1111
FIF	Facsimile information field	
FSK	Frequency shift key: Low-speed command identifier separating commands/scans; precedes command mode.	
FTT	Failure to train: The 1.5 seconds of the Training Check Frame (TCF) indicates line conditions are not good enough for this modulation	X010 0010
GC	Group command	2100 Hz for 1.5 to 100 seconds
GI	Group identification	1850 Hz
HDLC	High-level data link control	
LCS	Line conditioning signals	1100 Hz
MCF	Message confirmation	X011 0001 1850 Hz
MSG	Message received high speed data	
MPS	Multipage signal	X111 0010
NSF	Nonstandard facilities command	1000 0100
NSS	Nonstandard setup	X100 0100
PID	Procedure interrupt disconnect	X011 0110
PIN	Procedural interrupt negative	X011 0100
PIP	Procedural interrupt positive	X011 0101
PIS	Procedural interrupt signal	462 Hz for 3 seconds
PPS	Partial-page signal	X111 1101
PPS-EOM	Partial-page signal—end of message	X111 1101

Table 6-8. Fax abbreviations (continued)

Abbreviation	Function	Signal format (“X”= any #)
PPS-EOP	Partial-page signal—end of procedure	X111 1101
PPS-MPS	Partial-page signal—multipage signal	X111 1101
PPS-NULL	Partial-page signal—null	X111 1101
PPR	Partial-page request	X011 1101
PRI-EOM	Procedure interrupt—end of message	X111 1001
PRI-EOP	Procedure interrupt—end of procedure	X111 1100
PRI-MPS	Procedure interrupt—multipage signal	X111 1010
RCP	Return to control for partial page	0110 0001
RNR	Receive not ready	X011 0111
RR	Receive ready	X111 0110
RTC	Return to control mode	Six EOLs
RTN	Retrain negative	X011 0010
RTP	Retrain positive	X011 0011
TCF	Training check field	Zeroes for 1 5 5
TSI	Transmitting subscriber identification	X100 0010
PWD	Password (for polling)	1000 0011
PWD	Password (for transmission)	X100 0101
SCAN	Data-packets or scan-line count	
SEP	Selective polling	1000 0101
SUB	Sub-address	X100 0011
V.xx	Protocol version used (Group 3 only)	V.27 = 4800/2400 V.29 = 9600/7200 V.33 = 14400/12000 V.17 = 14400/12000/9600/7200
XID	Exchange identification procedure	
???	Unidentified command sequence	



hp LaserJet *3380*

HP LASERJET FAX
222 555 1111
Dec-1-2003 4:21PM

T.30 Protocol Trace

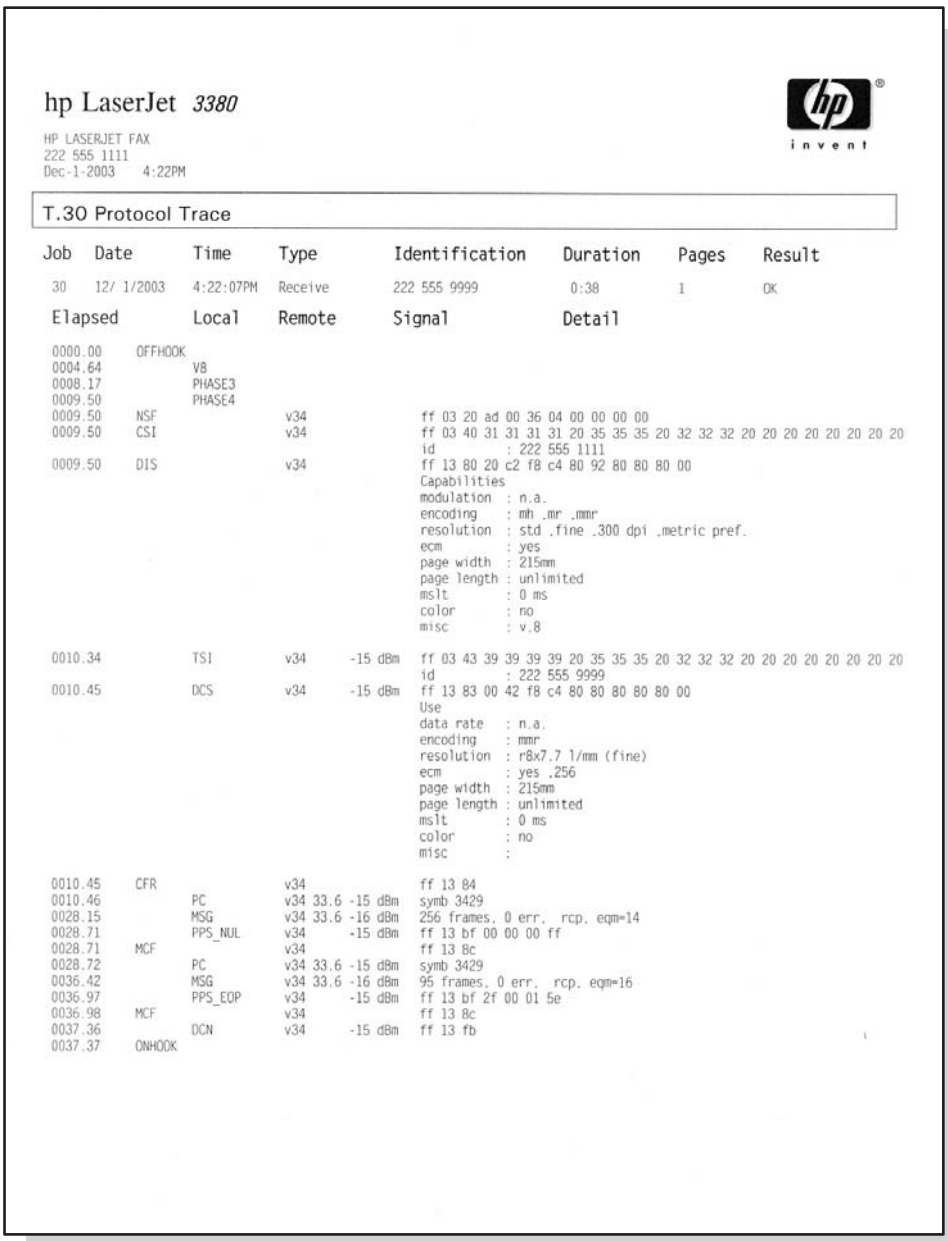
Job	Date	Time	Type	Identification	Duration	Pages	Result
29	12/ 1/2003	4:20:32PM	Send	5559999	0:44	1	OK

Elapsed	Local	Remote	Signal	Detail
0000.00	OFFHOOK			
0004.46	CNG			
0009.79	V8			
0013.33	PHASE3			
0014.69	PHASE4			
0014.90	NSF	v34	-16 dBm	ff 03 20 ad 00 36 04 00 00 00 00
0015.08	CSI	v34	-16 dBm	ff 03 40 39 39 39 39 20 35 35 35 20 32 32 32 20 20 20 20 20 20 20 20 id : 222 555 9999
0015.18	DIS	v34	-16 dBm	ff 13 80 20 c2 f8 c4 80 92 80 80 80 00 Capabilities modulation : n.a. encoding : mh ,mr ,mmr resolution : std ,fine ,300 dpi ,metric pref. ecm : yes page width : 215mm page length : unlimited mslt : 0 ms color : no misc : v.8
0015.18	TSI	v34		ff 03 43 31 31 31 31 20 35 35 35 20 32 32 32 20 20 20 20 20 20 20 20 id : 222 555 1111
0015.18	DCS	v34		ff 13 83 00 42 f8 c4 80 80 80 80 80 00 Use data rate : n.a. encoding : mmr resolution : r8x7.7 l/mm (fine) ecm : yes ,256 page width : 215mm page length : unlimited mslt : 0 ms color : no misc :
0015.81	CFR	v34	-16 dBm	ff 13 84
0015.81	PC	v34 33.6		symb 3429
0033.31	MSG	v34 33.6		
0033.72	PPS_NUL	v34		ff 13 bf 00 00 00 ff
0034.06	MCF	v34	-16 dBm	ff 13 8c
0034.06	PC	v34 33.6		symb 3429
0041.33	MSG	v34 33.6		
0041.74	PPS_EOP	v34		ff 13 bf 2f 00 01 5a
0042.08	MCF	v34	-16 dBm	ff 13 8c
0042.08	DCN	v34		ff 13 fb
0043.50	ONHOOK			

Figure 6-10. **Example of a T.30 trace of a successfully sent fax**

Note

Phase A, call establishment, does not show up on a trace report. Phase C is the phase in which faxed pages are transferred.



hp LaserJet *3380*

HP LASERJET FAX
222 555 1111
Dec-1-2003 4:22PM

T.30 Protocol Trace

Job	Date	Time	Type	Identification	Duration	Pages	Result
30	12/ 1/2003	4:22:07PM	Receive	222 555 9999	0:38	1	OK

Elapsed		Local	Remote	Signal	Detail
0000.00	OFFHOOK				
0004.64		V8			
0008.17		PHASE3			
0009.50		PHASE4			
0009.50	NSF		v34		ff 03 20 ad 00 36 04 00 00 00 00
0009.50	CSI		v34		ff 03 40 31 31 31 31 20 35 35 35 20 32 32 32 20 20 20 20 20 20 20 20
					id : 222 555 1111
0009.50	DIS		v34		ff 13 80 20 c2 f8 c4 80 92 80 80 80 00
					Capabilities
					modulation : n.a.
					encoding : mh ,mr ,mmr
					resolution : std ,fine ,300 dpi ,metric pref.
					ecm : yes
					page width : 215mm
					page length : unlimited
					mslt : 0 ms
					color : no
					misc : v.8
0010.34		TSI	v34	-15 dBm	ff 03 43 39 39 39 39 20 35 35 35 20 32 32 32 20 20 20 20 20 20 20 20
					id : 222 555 9999
0010.45		DCS	v34	-15 dBm	ff 13 83 00 42 f8 c4 80 80 80 80 80 00
					Use
					data rate : n.a.
					encoding : mmr
					resolution : r8x7.7 l/mm (fine)
					ecm : yes ,256
					page width : 215mm
					page length : unlimited
					mslt : 0 ms
					color : no
					misc :
0010.45	CFR		v34		ff 13 84
0010.46		PC	v34 33.6	-15 dBm	symb 3429
0028.15		MSG	v34 33.6	-16 dBm	256 frames, 0 err, rcp, eqm=14
0028.71		PPS_NUL	v34	-15 dBm	ff 13 bf 00 00 00 ff
0028.71	MCF		v34		ff 13 8c
0028.72		PC	v34 33.6	-15 dBm	symb 3429
0036.42		MSG	v34 33.6	-16 dBm	95 frames, 0 err, rcp, eqm=16
0036.97		PPS_EOP	v34	-15 dBm	ff 13 bf 2f 00 01 5e
0036.98	MCF		v34		ff 13 8c
0037.36		DCN	v34	-15 dBm	ff 13 fb
0037.37	ONHOOK				

Figure 6-11. **Example of a T.30 trace of a successfully received fax**

Service-mode functions

Use the following information to perform system-wide reset procedures and to adjust certain global settings such as the country/region. Users do not have access to this information.

Secondary service menu

Use the secondary service menu to perform various tests and print service reports. The following is a hierarchical diagram of the secondary service menu.

Main menu	Submenu	Submenu
2ndary Service	Service Reports	Continuous Self-Test DS Fax DS No Fax Extended Keymap Translations Location codes Data Store Error Report
	Scan Calibration	
	Scanline data	Red-corrected Blue-corrected Green-corrected Red-uncorrected Blue-uncorrected Green-uncorrected
	Location	USA 1=Yes 2=No
	Clock Dithering	On Off
	Park Scanner	

To gain access to the secondary service menu

1. Make sure that the control-panel display reads **Ready**.
2. Press MENU/ENTER.
3. Press 2 on the keypad.

Note You can gain access to the secondary service menu from any other menu by pressing 2.

4. Use the < or > button to navigate the secondary service menu.

5. To exit the secondary service menu and remove it from the menu tree, press CANCEL to return to the **Ready** display, and then press CANCEL again.

To print a list of all the Fax data-store parameters

1. From the secondary service menu, use the < or > button to select **Service reports**, and press MENU/ENTER.
2. Use the < or > button to select **DS-Fax**, and press MENU/ENTER.

Developer's menu

Use the developer's menu to adjust fax data-store parameters and to run various tests. The following is a hierarchical diagram of the developer's menu.

Main menu	Submenu	Submenu
Developer's menu	Display test	
	Read Register	
	Write Register	
	R/W parameter	
	Monitor test	Onhook monitor Offhook monitor Eavesdrop Test Signal Pwr Mon.
	LIU test	LIU inputs LIU ID
	Loopback test	
	Data Store	
	Transmit test	OFFHOOK ONHOOK DIAL NUMBER **Note** Several other options are available under this menu.

To gain access to the developer's menu:

1. Make sure that the control-panel display reads **Ready**.
2. Press MENU/ENTER.
3. Simultaneously press the * and # buttons on the keypad.

Note You can gain access to the developer's menu from any other menu by simultaneously pressing the * and # buttons on the keypad.

4. Use the < or > button to navigate the developer's menu.
5. To exit the developer's menu and remove it from the menu tree, press CANCEL to return to the **Ready** display, and then press CANCEL again.

To adjust fax data-store parameters

When you adjust fax data-store parameters, the product does not alert you to incorrect input values. Changing fax data-store parameters can render the product illegal or inoperable.

Note

Before adjusting the fax data-store parameters, you can print a list of all the parameters from the secondary service menu. See To print a list of all the Fax data-store parameters.

1. On the developer's menu, use the < or > button to navigate to **R/W PARAMETER**, and then press MENU/ENTER.
2. Use the < or > button to locate the parameter that you want to change. The current setting appears on the control-panel display.
3. Type the new value for the fax data-store parameter, and then press MENU/ENTER.

To scroll quickly to a particular data-store parameter

When **R/W PARAMETER** appears on the control-panel display, jump directly to any parameter ID that does not contain a 2 by typing the ID on the keypad. (Pressing 2 brings up the secondary service menu.) To change a parameter that has a 2 in its ID, type the ID of the closest parameter that does not have a 2 and then use the < or > button to locate the parameter that you want to change. For example, to move quickly to parameter 152, enter 151 >.

Adjusting the country/region code parameters

Three situations can occur that necessitate changing the country/region or language settings for the product:

1. The customer has moved to a different country/region from where the product was purchased.
2. The information has been erased because of an NVRAM initialization.
3. The formatter was replaced.

Use the information in the following sections to adjust the country/region and language settings.

To change the country/region from one location to another

1. Press MENU/ENTER, and then press 2 to gain access to the **Secondary Service** menu.
2. Press < or > to select **Location**, and then press MENU/ENTER.
3. Press < or > until the correct location appears.
4. When the correct location appears, press MENU/ENTER. Press 1 to confirm the new location. The product automatically turns itself off and then on after the setting is confirmed.

To set the language and location if none is set

If the language and location settings have been erased because NVRAM has been initialized, or if the formatter has been replaced, the product automatically prompts for the language and the location when it is turned on.

Note The customer cannot send or receive faxes until these settings have been established.

1. Press < or > until the correct language appears.
2. When the correct language appears, press MENU/ENTER, and then press 1 to confirm the selection.
3. Press < or > until the correct country/region appears.

Note The list of countries/regions that appears on the control-panel display depends on the LIU that is installed in the product.

4. When the correct country/region appears, press MENU/ENTER, and then press 1 to confirm the selection.
5. After both the language and the location settings are established, the product automatically turns itself off and then on.

Soft reset

Before performing an NVRAM init, attempt a soft reset, which does not reset configuration settings or cause loss of data.

To perform a soft reset

1. Press MENU/ENTER.
2. Simultaneously press then release the * button and the # button to enter the Developer's menu.
3. Press the < or > button until the message **REINIT FFS** appears on the second line of the control-panel display.
4. Press MENU/ENTER.
5. The process takes approximately 2.5 minutes. During that time, the control-panel display will change several times before returning to **Ready**.
6. When the **Ready** message appears on the control-panel display, press CANCEL to exit the Developer's menu.

NVRAM init

NVRAM init returns all stored parameters in NVRAM to factory default values or to a default ROM value, depending on the variable, and performs a system reset.

Performing NVRAM init can cause the product to violate local telephone regulations. Reset the language and country/region after performing NVRAM init.

NVRAM init resets the following settings and information:

- All menu settings are reset to factory default values, including fax header and company name.
- Factory settings such as formatter number, page counts, and factory paper settings are reset.

- All faxes in memory are erased.
- All speed-dials, group-dials, and phone book entries are erased.
- All localization settings, including language and country/region, are reset.

To perform NVRAM init

1. Turn off the product.
2. Press and hold down the * and MENU/ENTER buttons.
3. Continue to hold down the buttons while you turn on the product. Hold the buttons through the entire power-on sequence.
4. When **Permanent Storage Init.** appears on the control-panel display, release the buttons.
5. When the message **Language** appears on the control-panel display, set the correct language and country/region.
6. Allow the product to return to **Ready** before using the product.

Printer job language (PJL) software commands

Many PJL scripts are available for restoring parameters such as paper size and page counts after the formatter has been replaced. For comprehensive instructions, see the *Printer Job Language Technical Manual* and the *Printer Job Language Technical Manual Addendum*.

System settings for localized products

Two LIUs are available for the product. The list of available countries/regions that appears in the **Secondary service** menu (in the **Location** submenu) varies according to the LIU that is installed in the product. The default system settings vary for each country/region. The following table lists the default system settings for each country/region. Be sure to reset any user-defined settings that differ from these settings.

Table 6-9. System settings

Country/region	LIU installed	Default media size[1]	Date format	Time format
Argentina	USA	Letter	ddmmyy	am/pm
Australia	USA	A4	ddmmyy	am/pm
Austria	Europe	A4	ddmmyy	24 hour
Belgium	Europe	A4	ddmmyy	24 hour
Brazil	USA	A4	ddmmyy	24 hour
Bulgaria	Europe	A4	ddmmyy	24 hour
Canada	USA	Letter	ddmmyy	am/pm
China	USA	A4	yymmdd	24 hour
Croatia	Europe	A4	ddmmyy	24 hour
Czech Republic	Europe	A4	ddmmyy	24 hour
Denmark	Europe	A4	ddmmyy	24 hour
Finland	Europe	A4	ddmmyy	24 hour
France	Europe	A4	ddmmyy	24 hour
Germany	Europe	A4	ddmmyy	24 hour
Greece	Europe	A4	ddmmyy	am/pm
Hong Kong SAR	USA	A4	yymmdd	am/pm
Hungary	Europe	A4	yymmdd	24 hour
India	USA	A4	ddmmyy	24 hour
Indonesia	USA	A4	ddmmyy	24 hour
Ireland	Europe	A4	ddmmyy	24 hour
Israel	Europe	A4	ddmmyy	24 hour
Italy	Europe	A4	ddmmyy	24 hour
Korea	USA	A4	yymmdd	am/pm
Luxemburg	Europe	A4	ddmmyy	24 hour
Malaysia	USA	A4	ddmmyy	24 hour

Table 6-9. System settings (continued)

Country/region	LIU installed	Default media size[1]	Date format	Time format
Mexico	USA	Letter	ddmmyy	am/pm
Netherlands	Europe	A4	ddmmyy	24 hour
New Zealand	USA	A4	ddmmyy	am/pm
Norway	Europe	A4	ddmmyy	24 hour
Pakistan	USA	A4	ddmmyy	am/pm
Peru	USA	Letter	ddmmyy	am/pm
Philippines	USA	Letter	mmddyy	am/pm
Poland	Europe	A4	yymmdd	24 hour
Portugal	Europe	A4	ddmmyy	24 hour
Romania	Europe	A4	ddmmyy	24 hour
Russia	Europe	A4	ddmmyy	24 hour
Singapore	USA	A4	ddmmyy	am/pm
Slovak Republic	Europe	A4	ddmmyy	24 hour
South Africa	Europe	A4	yymmdd	am/pm
Spain	Europe	A4	ddmmyy	24 hour
Sri Lanka	USA	A4	ddmmyy	24 hour
Sweden	Europe	A4	yymmdd	24 hour
Switzerland	Europe	A4	ddmmyy	24 hour
Taiwan	USA	A4	yymmdd	am/pm
Thailand	USA	A4	ddmmyy	24 hour
Turkey	Europe	A4	ddmmyy	24 hour
United Kingdom	Europe	A4	ddmmyy	24 hour
United States	USA	Letter	mmddyy	am/pm
Vietnam	USA	A4	ddmmyy	am/pm

[1]The default media-size setting that is listed is the same for the printer input trays and the fax glass-size setting.

Main wiring

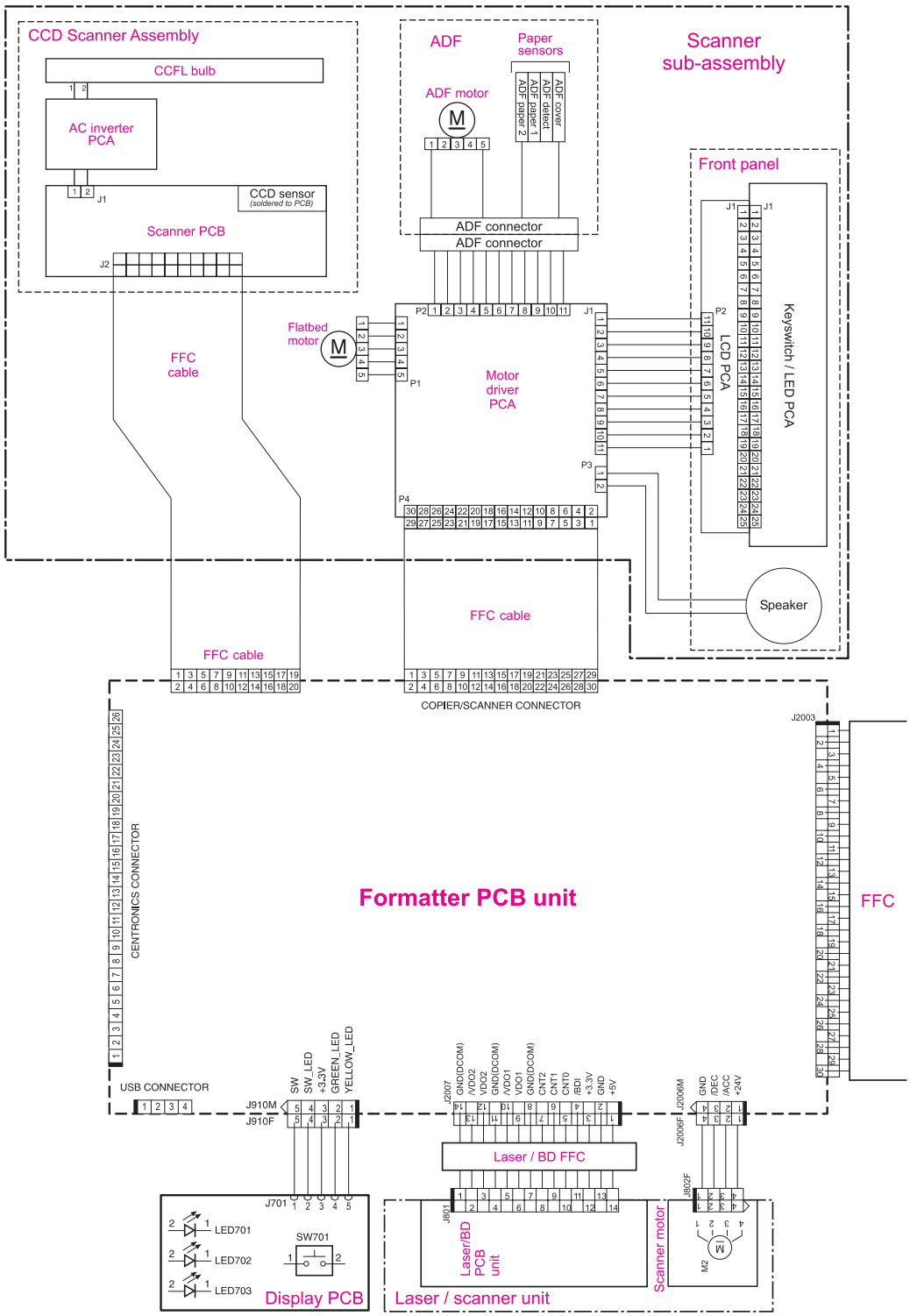


Figure 6-12. **Main wiring (1 of 2)**

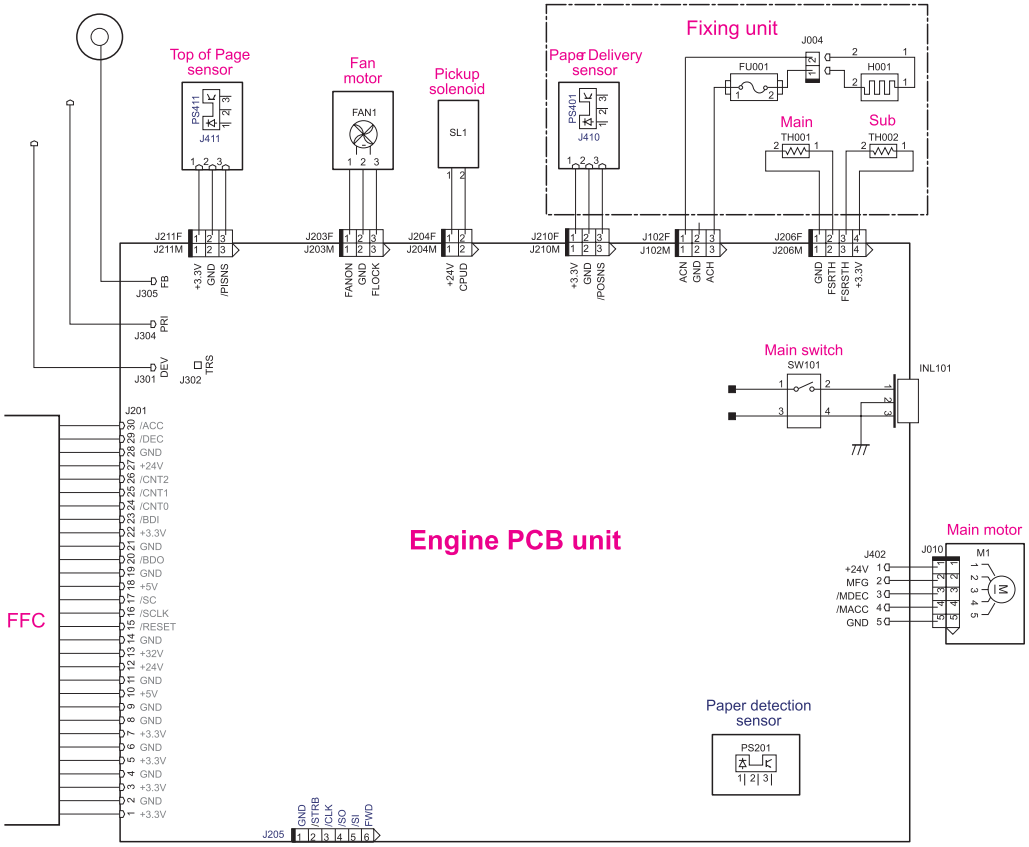


Figure 6-13. **Main wiring (2 of 2)**

Locations of connectors

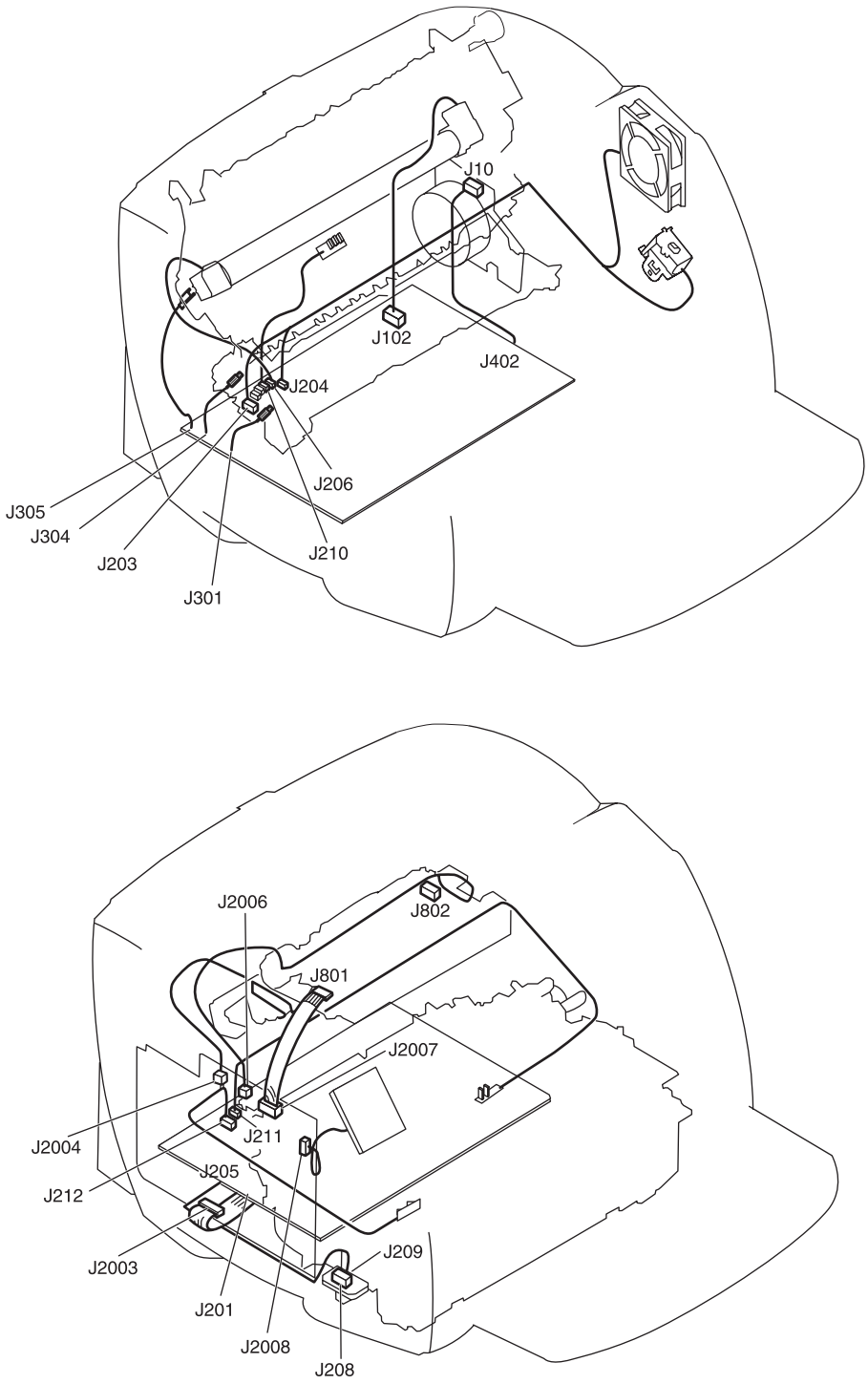


Figure 6-14. **Locations of printer connectors**

Locations of connectors and switches

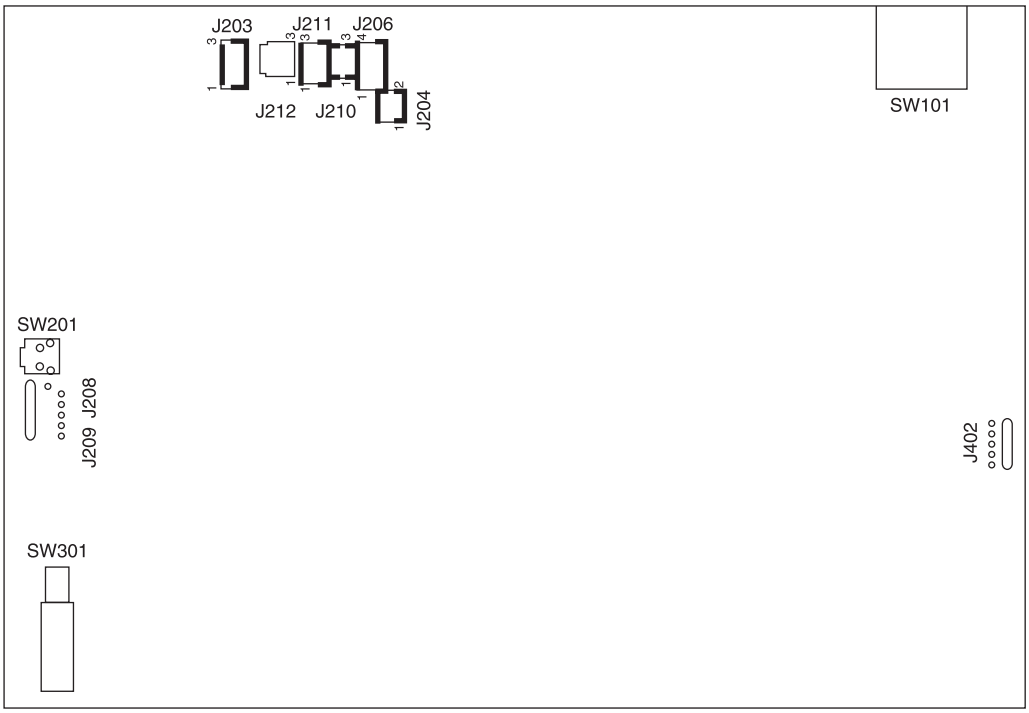


Figure 6-15. **Locations of connectors and switches**

Table 6-10. Switch functions

SW number	Function
SW101	Power switch
SW201	Switch for test print
SW301	Switch for detection of open door

7 Parts and diagrams

This chapter contains the following sections.

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- Parts that wear 248

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- Memory....249
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External assemblies....260
Internal assemblies....266

Ordering parts and supplies

Parts

Order replacement parts from the following website: https//partsdirect.hp.com/epdo/default/mainmenu.asp.

Related documentation and software

Order documentation and software from the websites listed in Table 7-1. Technical support websites.

Table 7-1. Technical support websites

HP Connect Online (for HP partners)	http://www.connect-online.hp.com
HP Customer Care Call Centers Information for contacting HP call centers in specific countries/regions.	http://www.hp.com/support/callcenters
HP Online Technical Support Software drivers, support documentation, and answers to frequently asked questions	http://www.hp.com/support
HP Technical Training (North America) Classes and schedules	http://www.compaq.com/training Note: Select your country/region in the "select a country or region" field at the top, right corner of the page.
Parts Parts information	http://partsurfer.hp.com

Parts that wear

The parts on the product that wear are listed in Maintenance in Table 3-1. Life expectancies of parts that wear. Parts are available directly from Hewlett-Packard at the following URL: http://partsdirect.hp.com.

Accessories

Memory

Table 7-2. Memory modules

Product name	Description	Part number
Dual inline memory module (DIMM)	8 MB	C7842A
DIMM	16 MB	C7843A
DIMM	32 MB	C7845A
DIMM	64 MB	C7846A

Print cartridges and toner supplies

Table 7-3. Print cartridges and toner cloth

Product name	Description	Part number
Print cartridge	2,500-page cartridge	C7115A
Print cartridge	3,500-page cartridge	C7115X
Toner cloth	Ideal for wiping up toner spills	5090-3379

Cables

Table 7-4. Cables and power cords

Product name	Description	Part number
Parallel cable	2-meter (6.6-foot) IEEE-1284 parallel cable	C2950A
Parallel cable	3-meter (9.8-foot) IEEE-1284 parallel cable	C2951A
USB cable	2-meter (6.6-foot) USB cable	8121-0539
USB cable	0.6-meter (2-foot) USB cable	8121-0549
Fax telephone cord	2-wire, 3-meter (9.8-foot) fax telephone cord	8121-0811
Power cord, 1.8 m (6 feet)	U.S./Canada	8120-8382
Power cord, 1.8 m (6 feet)	Europe	8120-0516
Power cord, 1.8 m (6 feet)	Switzerland	8120-0519

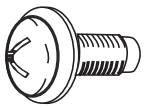
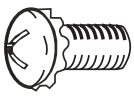
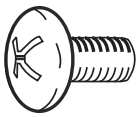
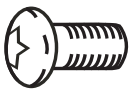
Table 7-4. Cables and power cords (continued)

Product name	Description	Part number
Power cord, 1.8 m (6 feet)	UK	8120-0517
Power cord, 1.8 m (6 feet)	Danish	8120-0518
Power cord, 1.8 m (6 feet)	South America	8120-0520
Power cord, 1.8 m (6 feet)	Israel	8120-0521

Common hardware

The product has four common fasteners. See Table 7-5. Common fasteners for a description of these screw types.

Table 7-5. Common fasteners

Example	Description
	Screw, machine, truss head
	Screw, star
	Screw, self-tapping
	Screw, torx

Screws for the print engine are sold individually rather than in a kit. Consider ordering quantities of each screw that is listed in Table 7-6. Screws for the print engine.

Table 7-6. Screws for the print engine

Reference	Description	Part number
S1	Screw, RS, M4x12	XA9-0722-000CN
S2	Screw, with star washer, M3x6	XA9-0828-000CN
S3	Screw, with washer, M3x8	XA9-1420-000CN
S4	Screw, M4x14	XA9-1421-000CN
S5	Screw, RS, M3x6	XA9-1495-000CN
S6	Screw, TP, M3x8	XA9-1503-000CN
S7	Screw, RS, M3x8	XA9-1504-000CN
S8	Screw, with washer, M3x6	RB9-0818-000CN

Table 7-6. Screws for the print engine (continued)

Reference	Description	Part number
S9	Screw, tap, truss head, M4x10	RB9-0819-000CN
S10	Screw, tap, binding head, M3x8	RB9-0820-000CN
S11	Screw, tap, truss head, M3x8	XB4-7300-809CN
S12	Screw, TP, M3x6	XA9-1418-000CN
	Screw (formatter) M3x0, 5x6	0515-2908

Note Screws for the scanner portion of the product are listed in the appropriate parts diagrams in this chapter.

Parts kits

The gear kit includes the following items: 19T gear, 31T gear, ratchet, and compression spring.

The service parts kit includes left and right cartridge guides and the cartridge-guide holders.

Table 7-7. Parts kits

Item	Part number
Gear kit	RY7-5081-000CN
Service parts kit	5851-1172

How to use the parts lists and diagrams

The figures in this chapter illustrate the major subassemblies in the product and their component parts. A table (material list) follows each exploded assembly diagram. Each table lists the reference designator, the associated part number for the item, and a description of the part.

Screws for the print engine are not listed in the main parts tables. For convenience, the part numbers for the screws are included within the diagrams.

Parts that have no reference designator or part number are not field-replaceable units and cannot be ordered.

While looking for a part number, pay careful attention to the voltage listed in the description column to make sure that the part number selected is for the correct product model.

Scanner assemblies

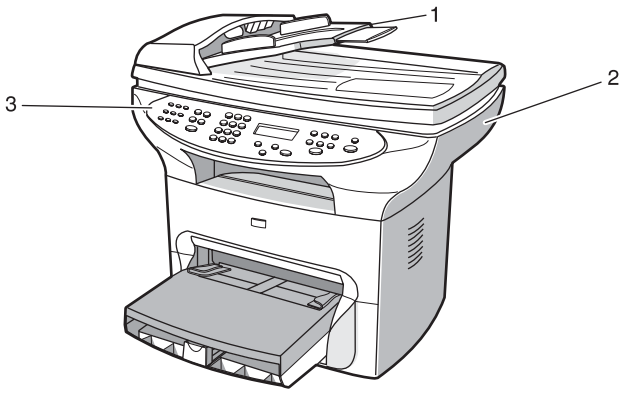


Figure 7-1. **Scanner and ADF**

Table 7-8. Scanner and ADF

Ref	Description	Part number	Qty
1	Automatic document feeder (ADF)	C9143-60108	1
2	Scanner assembly	Q2660-60115	1
3	Control panel (see table 7-11)		

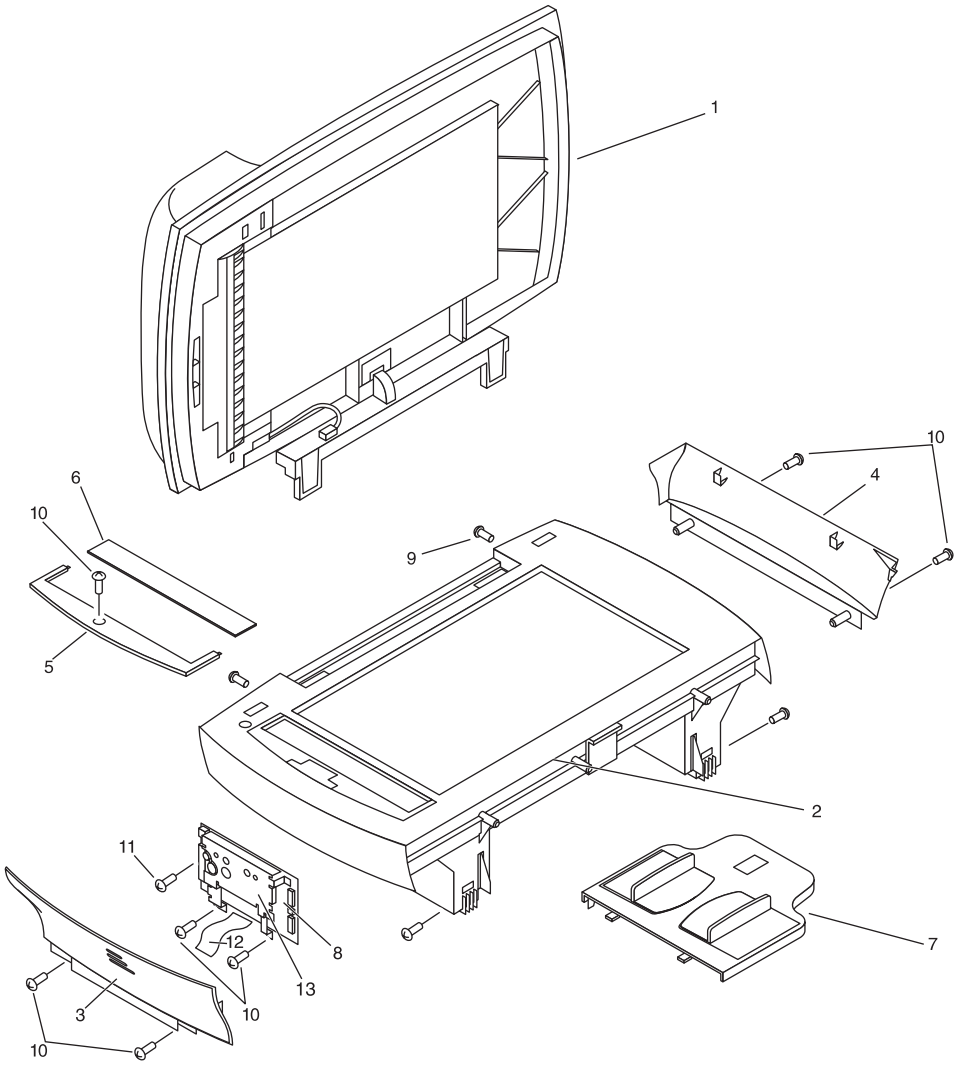


Figure 7-2. **Scanner covers and ADF**

Table 7-9. Scanner and ADF

Ref	Description	Part number	Qty
1	ADF	C9143-60108	1
2	Scanner assembly	Q2660-60106	1
3	Left midpanel scanner cover	C9124-40002	1
4	Right midpanel scanner cover	C9124-40003	1
5	ADF glass frame	C9124-40005	1
6	ADF glass	C7296-00014	1
7	ADF input tray	C9143-60102	1
8	Scanner PCA	Q2657-67901	1
9	Screws that secure scanner to printer	0515-4331	4
10	Screws for scanner side panels, scanner formatter, and ADF glass frame	0515-4330	7
11	Screw for scanner formatter	0515-4257	1
12	Scanner flat flexible cable (FFC) assembly (includes FCC C9124-60116 and shield)	Q2660-60103	1
13	RFI shield, ADF	C9124-00002	

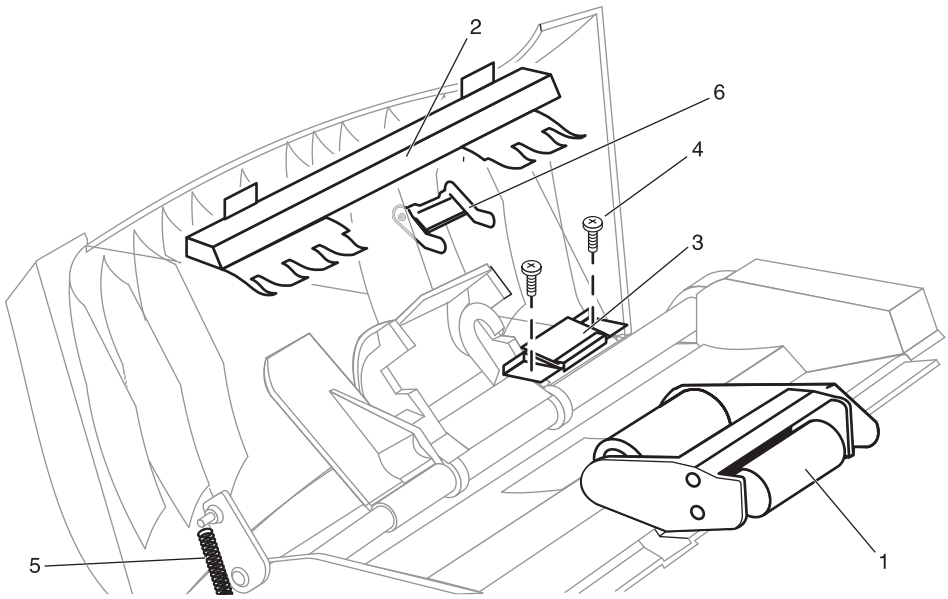


Figure 7-3. **ADF rollers and separation pad**

Table 7-10. ADF rollers and separation pad

Ref	Description	Part number	Qty
1	ADF pickup roller assembly	C7309-60049	1
2	ADF document feed guide	C7309-40153	1
3	ADF separation pad	C7309-60076	1
4	Torx screw	0624-1055	2
5	ADF input-tray spring	C7309-80013	1
6	ADF input-tray flag	C7309-40013	1

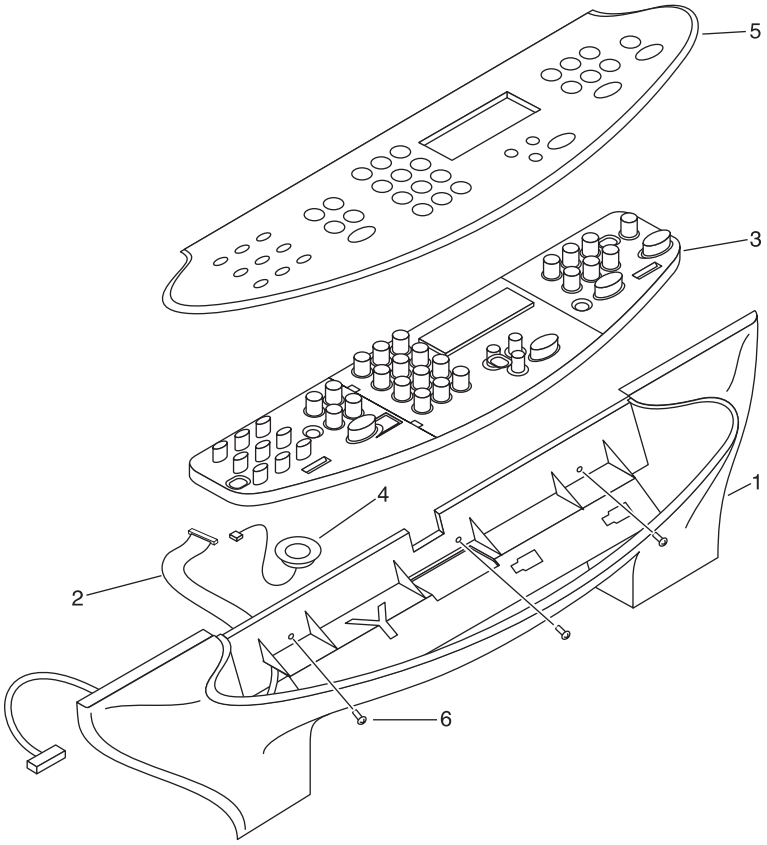


Figure 7-4. **Control-panel assembly**

Table 7-11. Control-panel assembly

Ref	Description	Part number	Qty
1	Control-panel chassis	C9124-40006	1
2	Control-panel cable	Q2660-60104	1
3	Control panel	Q2660-60101	1
4	Speaker	C9124-60113	1
6	Screws for control-panel chassis	0515-4330	3
5	English 3380 Bezel	Q2660-40003	
5	French 3380 Bezel	Q2660-40004	
5	German 3380 Bezel	Q2660-40005	
5	German unpainted 3380 Bezel	Q2660-40028	
5	Italian 3380 Bezel	Q2660-40006	
5	Spanish 3380 Bezel	Q2660-40007	
5	Danish 3380 Bezel	Q2660-40008	
5	Dutch 3380 Bezel	Q2660-40009	
5	Finnish 3380 Bezel	Q2660-40010	
5	Norwegian 3380 Bezel	Q2660-40026	
5	Portuguese 3380 Bezel	Q2660-40011	
5	Swedish 3380 Bezel	Q2660-40012	
5	Czech 3380 Bezel	Q2660-40013	
5	Hungarian 3380 Bezel	Q2660-40014	
5	Polish 3380 Bezel	Q2660-40015	
5	Russian 3380 Bezel	Q2660-40016	
5	Slovak 3380 Bezel	Q2660-40017	
5	Turkish 3380 Bezel	Q2660-40018	
5	Arabic 3380 Bezel	Q2660-40019	
5	Greek 3380 Bezel	Q2660-40020	
5	Hebrew 3380 Bezel	Q2660-40021	
5	Korean 3380 Bezel	Q2660-40022	
5	Simplified Chinese 3380 Bezel	Q2660-40023	
5	Traditional Chinese 3380 Bezel	Q2660-40024	
5	Thai 3380 Bezel	Q2660-40025	
5	Vietnamese 3380 Bezel	Q2660-40029	

External assemblies

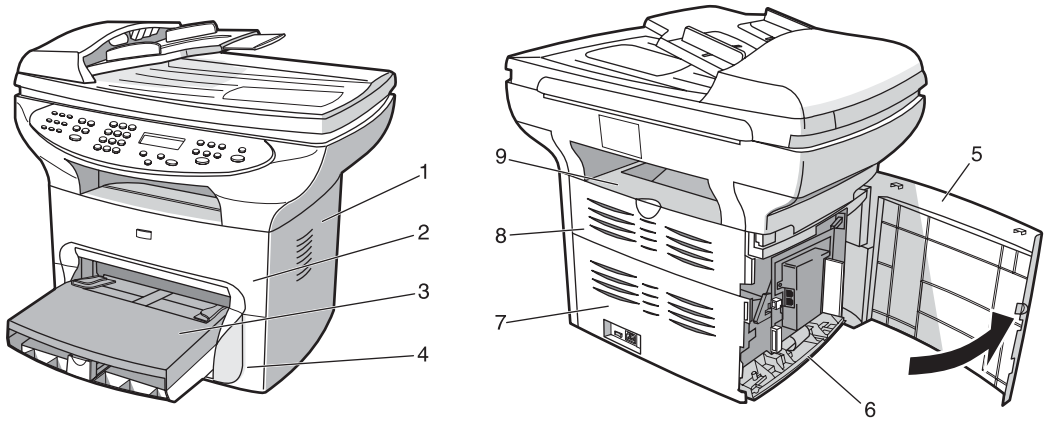


Figure 7-5. **External components**

Table 7-12. External components

Ref	Description	Part number	Qty
1	Right side cover	RG0-1116-000CN	1
2	Print-cartridge door	RG0-1115-040CN	1
3	Paper-tray assembly (see table 7-14)		
4	Front cover	RA0-1450-020CN	1
5	Left side cover	RG0-1113-000CN	1
6	Left bottom frame support	RA0-1470-000CN	1
7	Back cover (includes straight-through output door)	RG0-1114-000CN	1
8	Straight-through output door (includes back cover)	RG0-1114-000CN	1
9	Top cover	RF0-1100-030CN	1
	110-volt replacement unit	Q2660-60055	
	220-volt replacement unit	Q2660-60065	

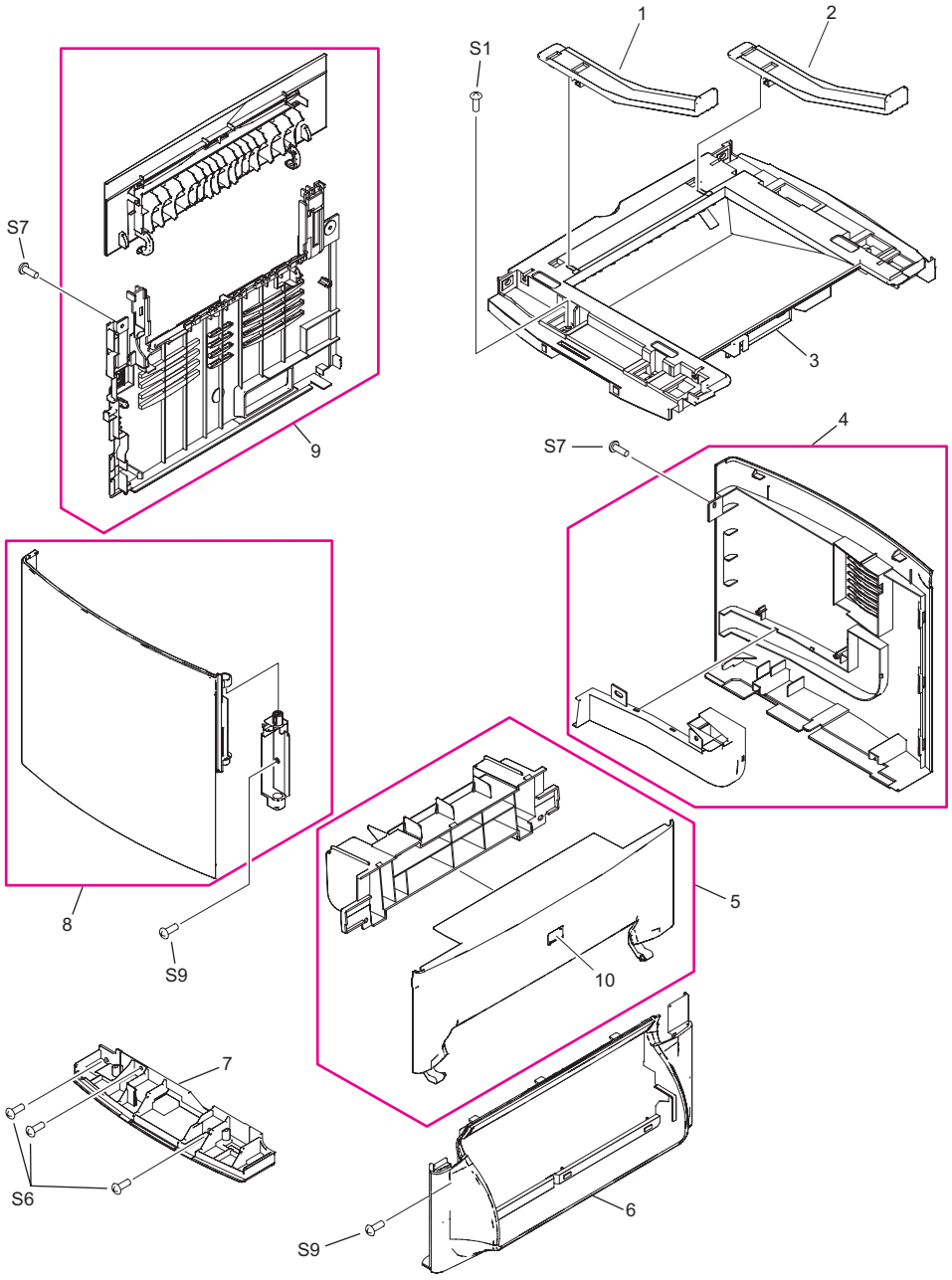


Figure 7-6. **Printer covers**

Table 7-13. Printer covers

Ref	Description	Part number	Qty
1	Left height guide	RC1-2391-000CN	1
2	Right height guide	RC1-2392-000CN	1
3	Cover, top	RF0-1100-030CN	1
4	Cover, right-side assembly	RG0-1116-000CN	1
5	Door, print-cartridge assembly	RG0-1115-04 0CN	1
6	Cover, front	RA0-1450-020CN	1
7	Support, left bottom frame	RA0-1470-000CN	1
8	Cover, left assembly	RG0-1113-000CN	1
9	Cover, back assembly	RG0-1114-000CN	1
10	HP jewel	7121-8043	1
S1	Screw, RS, M4x12	XA9-0722-000CN	1
S6	Screw, TP, M3x8	XA9-1503-000CN	3
S7	Screw, RS, M3x8	XA9-1504-000CN	2
S9	Screw, tap, truss head, M4x10	RB9-0819-000CN	2

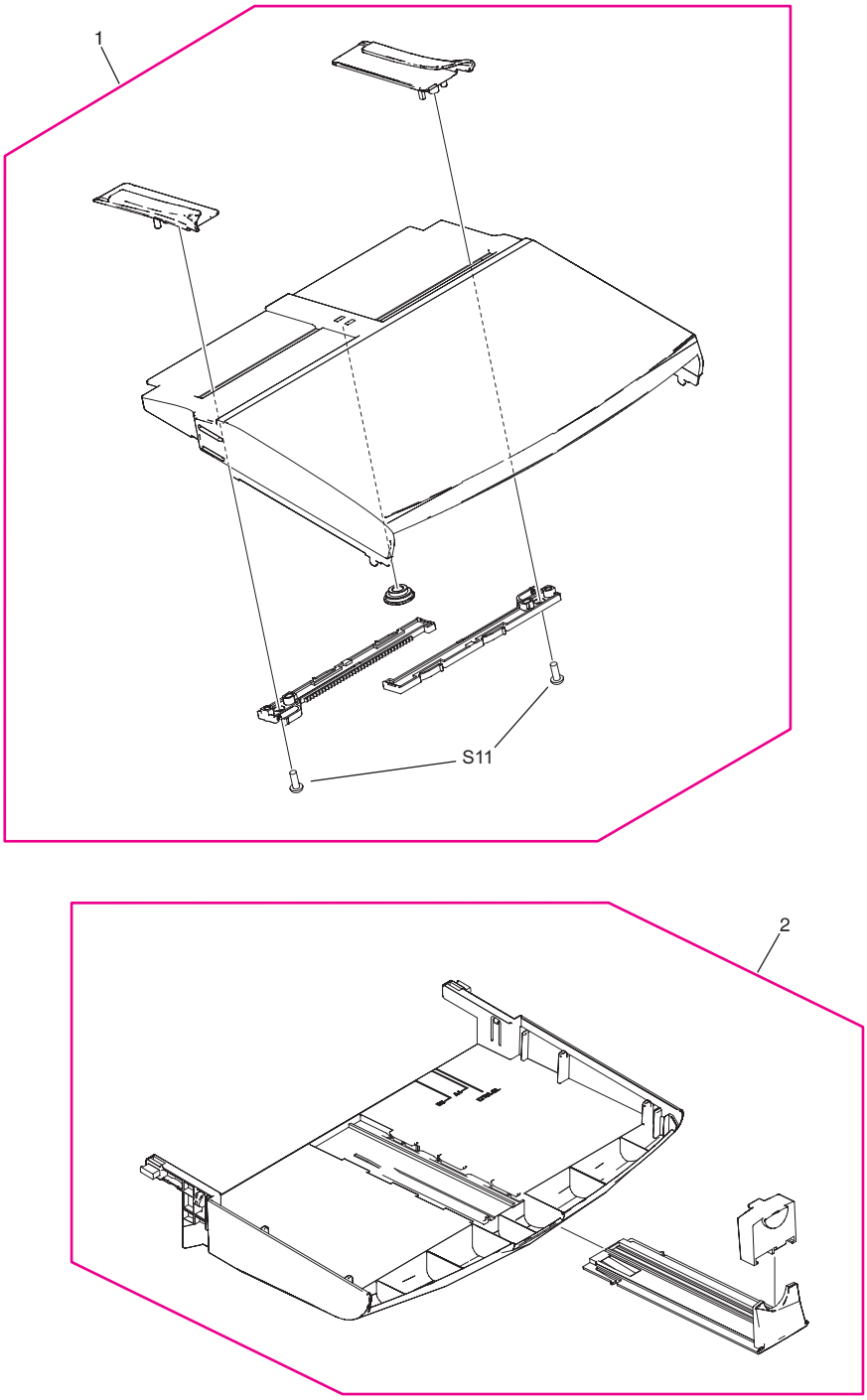


Figure 7-7. **Paper tray**

Table 7-14. Paper tray

Ref	Description	Part number	Qty
1	Paper-pickup cover assembly	RG0-1122-000CN	1
2	Printer pickup-tray assembly	RG0-1121-000CN	1
S11	Screw, tap, truss head, M3x8	XB4-7300-809CN	2

Internal assemblies

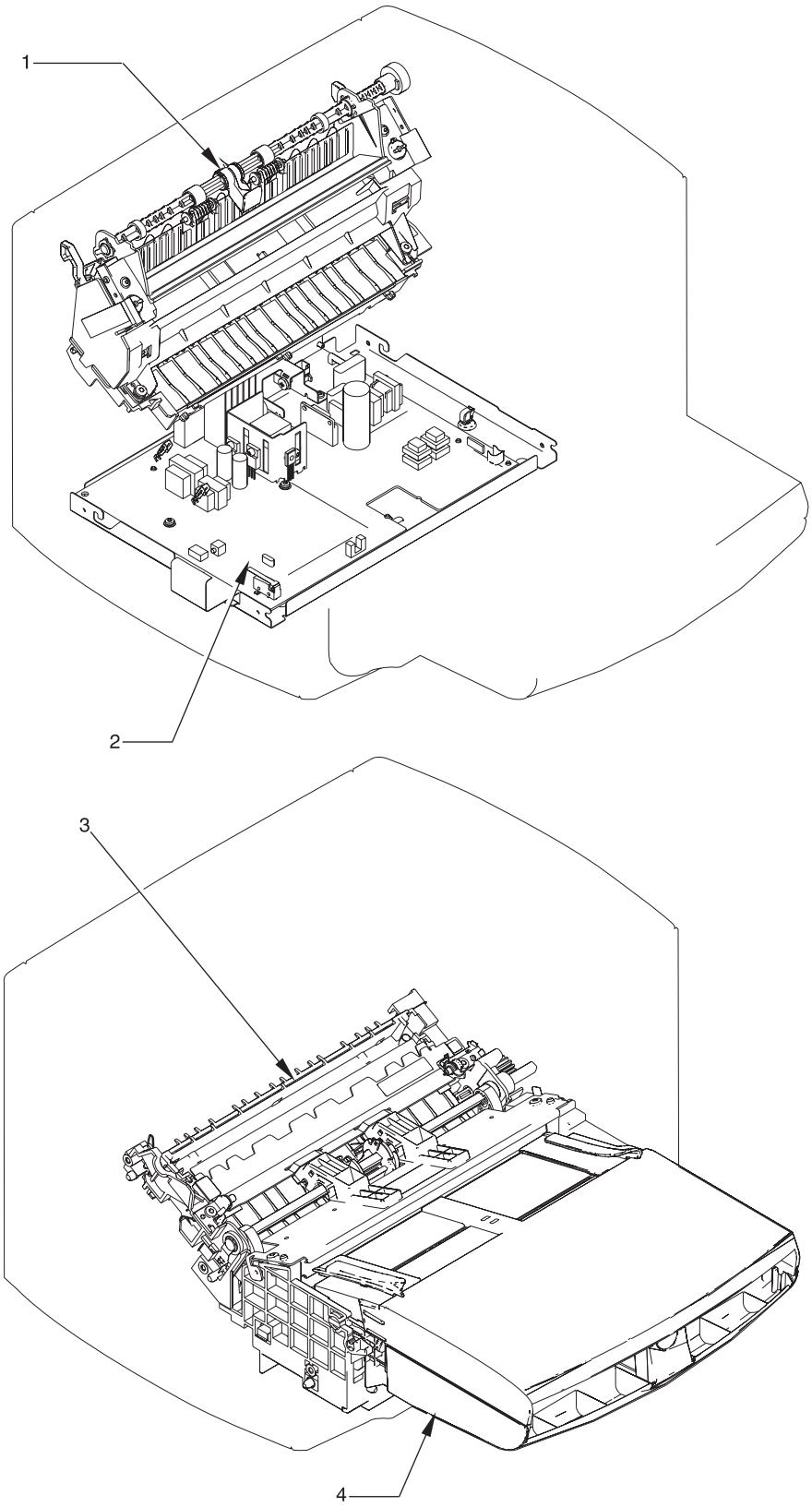


Figure 7-8. **Internal components**

Table 7-15. Major assemblies

Ref	Description	Part number	Qty
1	Fuser assembly (110-127 V)	RM1-0999-000CN	1
	Fuser assembly (220-240 V)	RM1-1000-000CN	1
2	Electrical components assembly (see table 7-20)		
3	Paper-pickup assembly	RM1-0838-000CN	1
4	Paper-pickup-tray assembly (see table 7-14)		
	Gear kit	RY7-5081-000CN	
	Service parts kit	5851-1172	

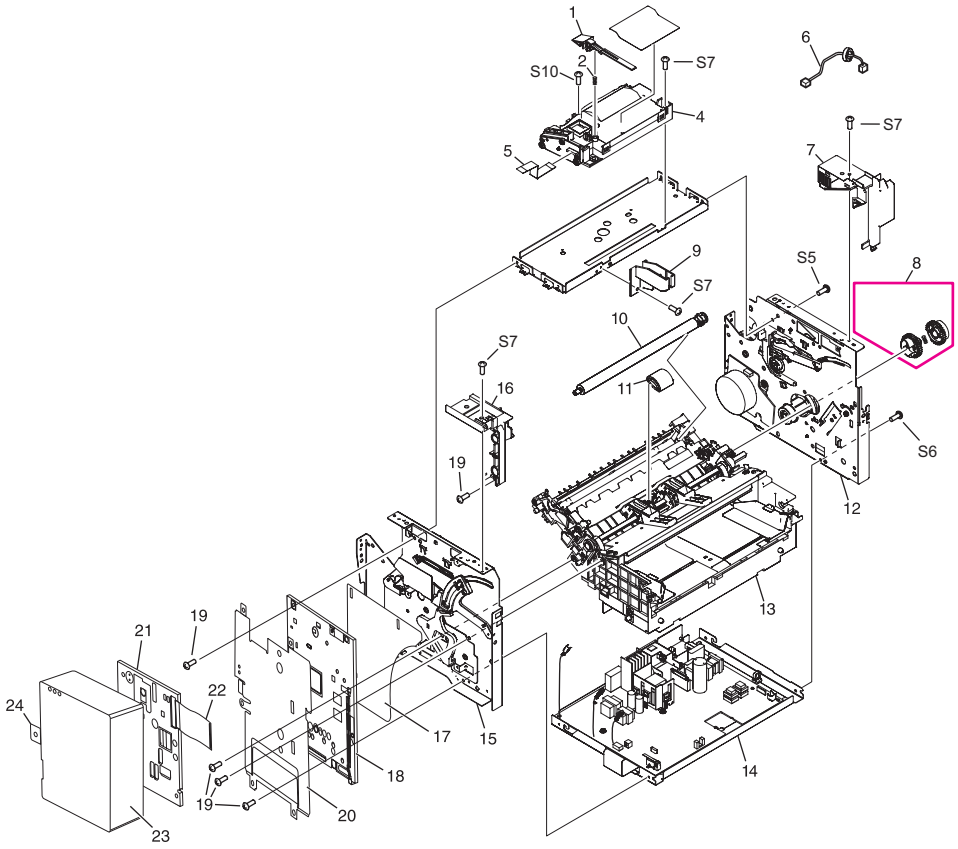


Figure 7-9. **Internal components (1 of 2)**

Table 7-16. Internal components (1 of 2)

Ref	Description	Part number	Qty
1	Shutter lever	RA0-1182-000CN	1
2	Spring, compression	RA0-1169-000CN	1
4	Laser/scanner assembly	RM1-0524-030CN	1
5	Cable, laser/scanner FFC	RK2-0185-000CN	1
6	Cable, laser/scanner motor	RM1-0832-000CN	1
7	Cover, right support	RA0-1452-000CN	1
8	Pickup gear assembly	RM1-0551-000CN	1
9	Guide, shutter	RC1-2195-000CN	1
10	Transfer roller	RM1-0550-000CN	1
11	Pickup roller	RL1-0303-000CN	1
12	Right plate assembly	RM1-0835-000CN	1
13	Paper-pickup assembly	RM1-0838-000CN	1
14	ECU (110-127 V)	RM1-0833-000CN	1
	ECU (220-240 V)	RM1-0834-000CN	1
15	Left plate assembly	RM1-0836-000CN	1
16	Cover, left support	RA0-1444-000CN	1
17	Engine deflector shield	Q2660-40002	1
18	Formatter, fax	Q2658-67901	1
19	Screw, formatter	0515-2908	5
20	RFI shield	Q2660-00002	1
21	LIU, NA/WW	C9138-60001	1
	LIU, EMEA	C9138-60002	1
22	Cable modem FCC	C9126-60103	1
23	LIU cover	C9126-40003	1
24	LIU groundstrap	C9126-00001	1
S5	Screw, RS, M3x6	XA9-1495-000CN	1
S6	Screw, TP, M3x8	XA9-1503-000CN	1
S7	Screw, RS, M3x8	XA9-1504-000CN	4
S10	Screw, tap, binding head M3x8	RB9-0820-000CN	1

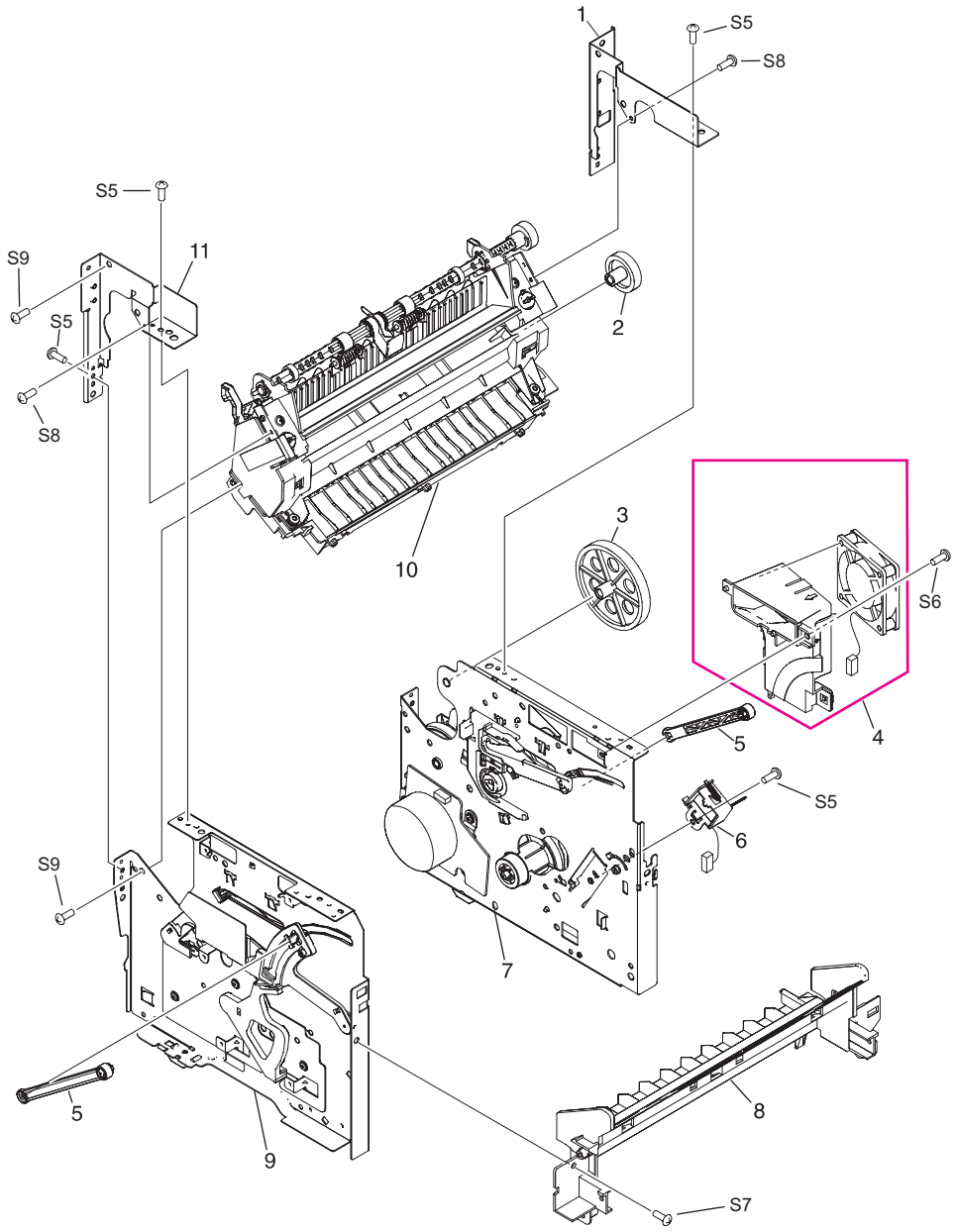


Figure 7-10. **Internal components (2 of 2)**

Table 7-17. Internal components (2 of 2)

Ref	Description	Part number	Qty
1	Fuser plate, right	RA0-1447-000CN	1
2	Gear, 29T	RA0-1088-000CN	1
3	Gear, 69T	RA0-1176-000CN	1
4	Fan assembly	RM1-0846-000CN	1
5	Connecting link	RA0-1457-000CN	2
6	Solenoid, 24 Vdc	RK2-0064-000CN	1
7	Right plate assembly	RM1-0835-000CN	1
8	Guide, front	RA0-1451-000CN	1
9	Left plate assembly	RM1-0836-000CN	1
10	Fuser, 110 V	RM1-0999-000CN	1
	Fuser, 220 V	RM1-1000-000CN	1
11	Fuser plate, left	RA0-1446-000CN	1
S5	Screw, RS, M3x6	XA9-1495-000CN	4
S6	Screw, TP, M3x8	XA9-1503-000CN	1
S7	Screw, RS, M3x8	XA9-1504-000CN	1
S8	Screw, with washer, M3x6	RB9-0818-000CN	2
S9	Screw, tap, truss head, M4x10	RB9-0819-000CN	2

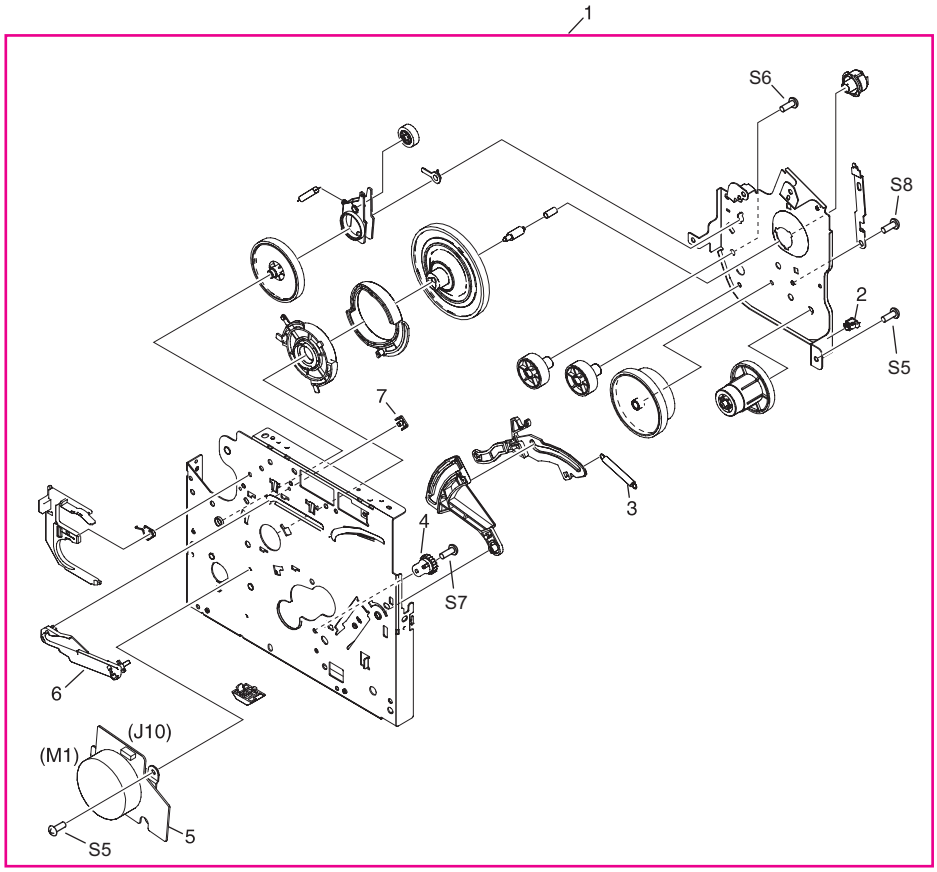


Figure 7-11. **Right plate assembly**

Table 7-18. Right plate assembly

Ref	Description	Part number	Qty
1	Right plate assembly	RM1-0835-000CN	1
2	Clamp, cable	WT2-5694-000CN	1
3	Spring, tension	RA0-1212-000CN	1
4	Gear, 17T	RA0-1172-000CN	1
5	Motor, stepping	RK2-0062-000CN	1
6	Right cartridge guide (part of service-parts kit)	5851-1172	1
7	Cartridge-guide holder (part of service-parts kit)	5851-1172	2
S5	Screw, RS, M3x6	XA9-1495-000CN	2
S6	Screw, TP, M3x8	XA9-1503-000CN	1
S7	Screw, RS, M3x8	XA9-1504-000CN	1
S8	Screw, with washer, M3x6	RB9-0818-000CN	1

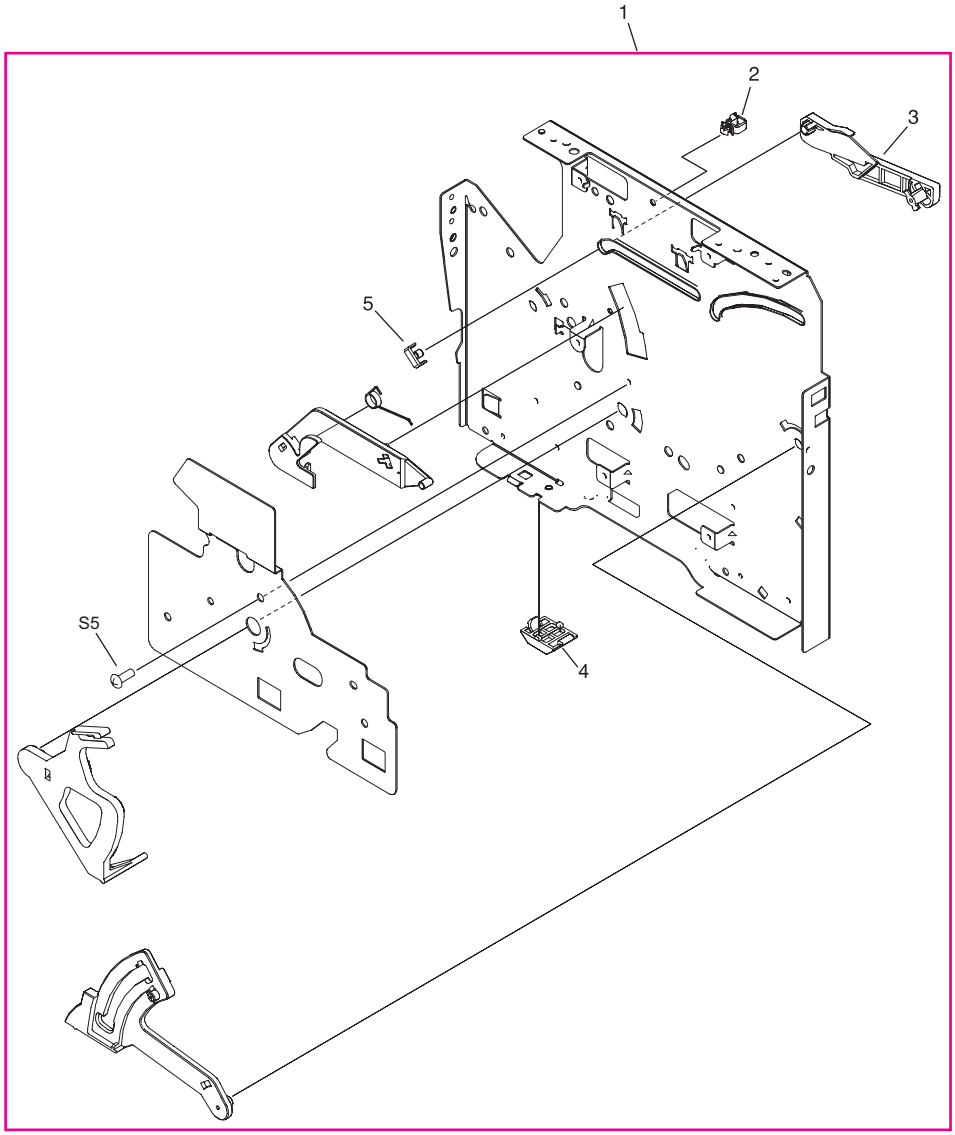


Figure 7-12. **Left plate assembly**

Table 7-19. Left plate assembly

Ref	Description	Part number	Qty
1	Left plate assembly	RM1-0836-000CN	1
2	Clamp, cable	WT2-5694-000CN	1
3	Left cartridge guide (part of service-parts kit)	5851-1172	1
4	Foot, rubber	RA0-1412-000CN	1
5	Cartridge-guide holder (part of service-parts kit)	5851-1172	2
S5	Screw, RS, M3x6	XA9-1495-000CN	1

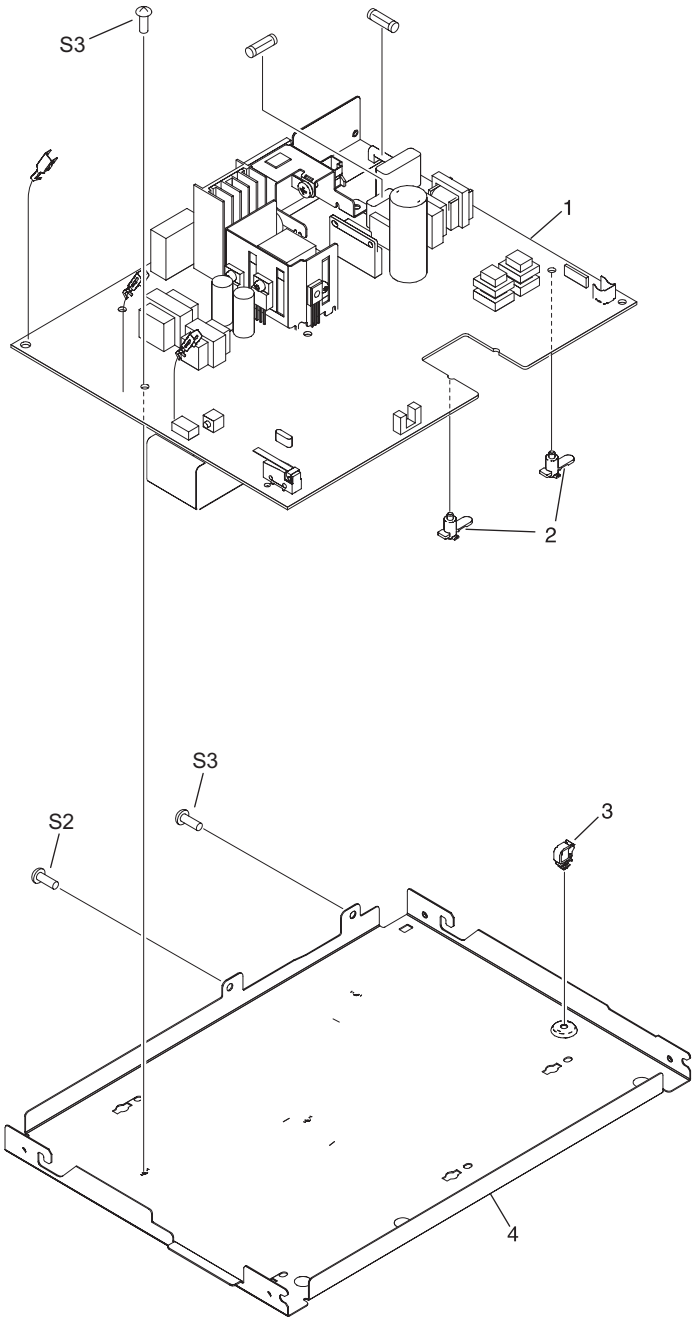


Figure 7-13. **Electrical components**

Table 7-20. Electrical components

Ref	Description	Part number	Qty
1	Engine controller PCB assembly, 110-127 V	RM1-0833-000CN	1
	Engine controller PCB assembly, 220-240 V	RM1-0834-000CN	1
2	PCB spacer	RA0-1128-000CN	6
3	Clamp, cable	WT2-5694-000CN	1
4	Engine controller case	RA0-1127-000CN	1
S2	Screw, with star washer, M3x6	XA9-0828-000CN	1
S3	Screw, with washer, M3x8	XA9-1420-000CN	2

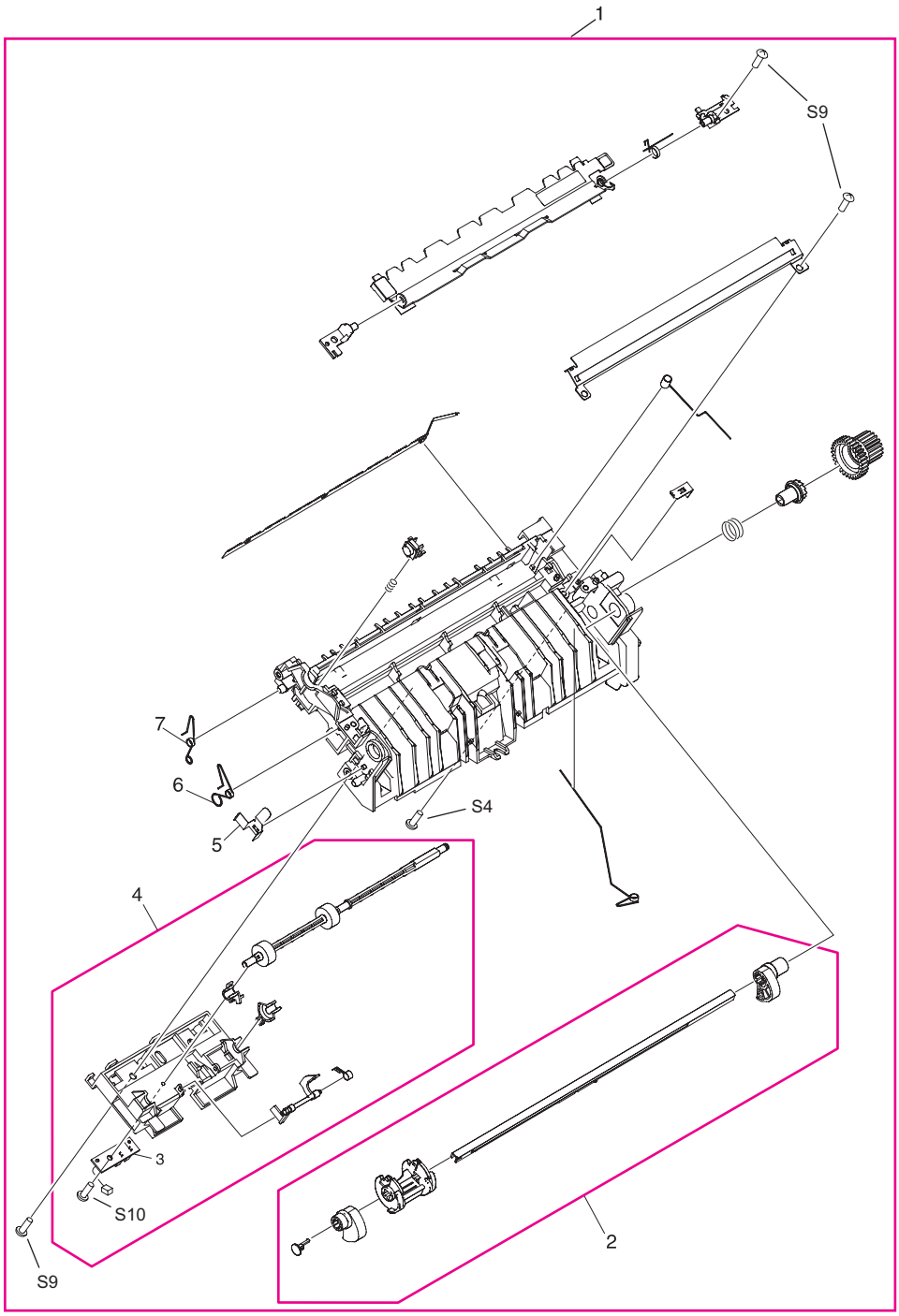


Figure 7-14. **Paper-pickup assembly (1 of 2)**

Table 7-21. Paper-pickup assembly (1 of 2)

Ref	Description	Part number	Qty
1	Paper-pickup assembly (also includes all parts shown in the next figure)	RM1-0838-000CN	1
2	Paper-pickup-shaft assembly	RM1-0533-000CN	1
3	Paper-sensor PCB assembly	RM1-0851-000CN	1
4	Feed-roller holder assembly	RM1-0839-000CN	1
5	Grounding plate	RA0-1072-000CN	1
6	Spring, torsion	RA0-1035-000CN	1
7	Spring, torsion	RA0-1200-000CN	1
S4	Screw, M4x14	XA9-1421-000CN	1
S9	Screw, tap, truss head, M4x10	RB9-0819-000CN	3
S10	Screw, tap, binding head, M3x8	RB9-0820-000CN	1

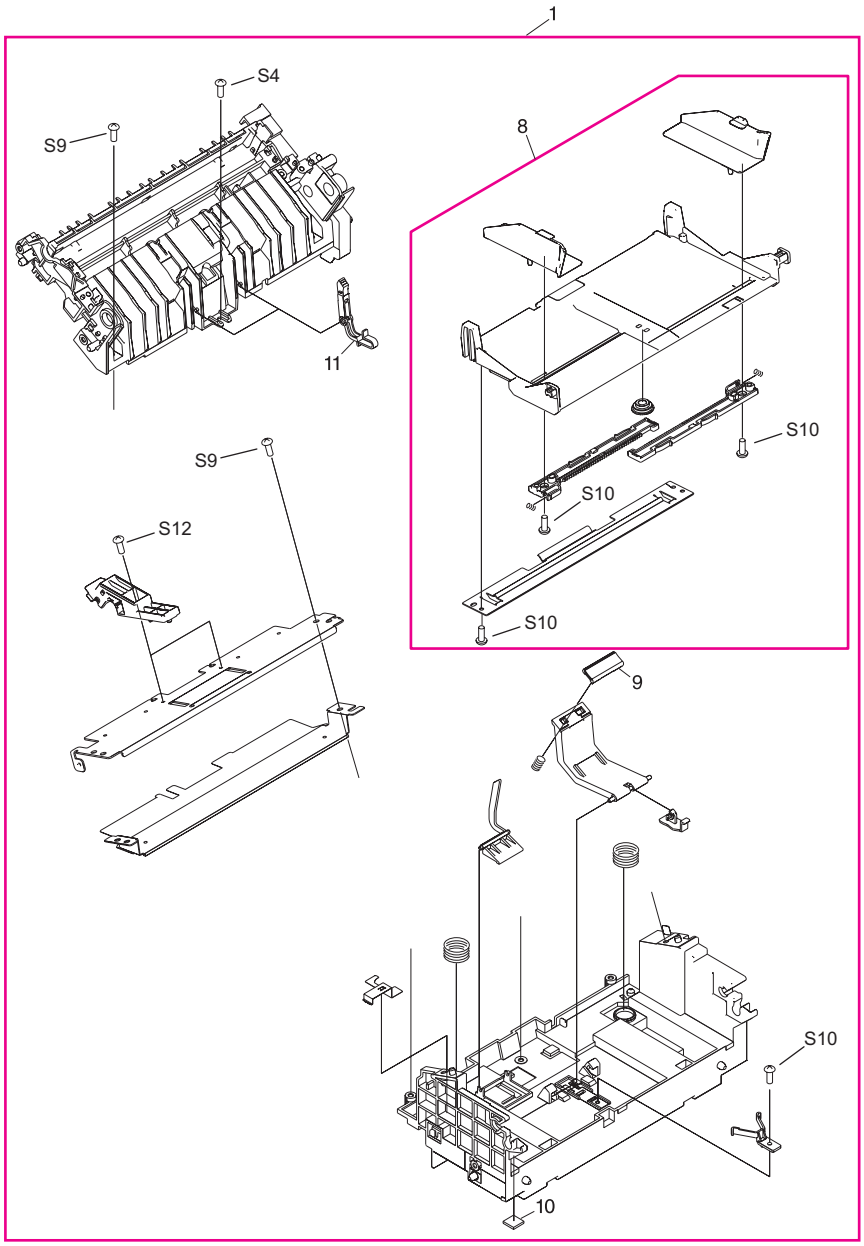


Figure 7-15. **Paper-pickup assembly (2 of 2)**

Table 7-22. Paper-pickup assembly (2 of 2)

Ref	Description	Part number	Qty
1	Paper-pickup assembly (also includes all parts shown in the previous figure)	RM1-0838-000CN	1
8	Paper lift-plate assembly	RM1-0840-000CN	1
9	Separation pad	RF0-1014-020CN	1
10	Foot, rubber (paper pickup)	RA0-1003-000CN	2
11	Sub pad	RC1-1794-000CN	2
S4	Screw, M4x14	XA9-1421-000CN	1
S9	Screw, tap, truss head, M4x10	RB9-0819-000CN	2
S10	Screw, tap, binding head, M3x8	RB9-0820-000CN	4
S12	Screw, TP, M3x6	XA9-1418-000CN	1

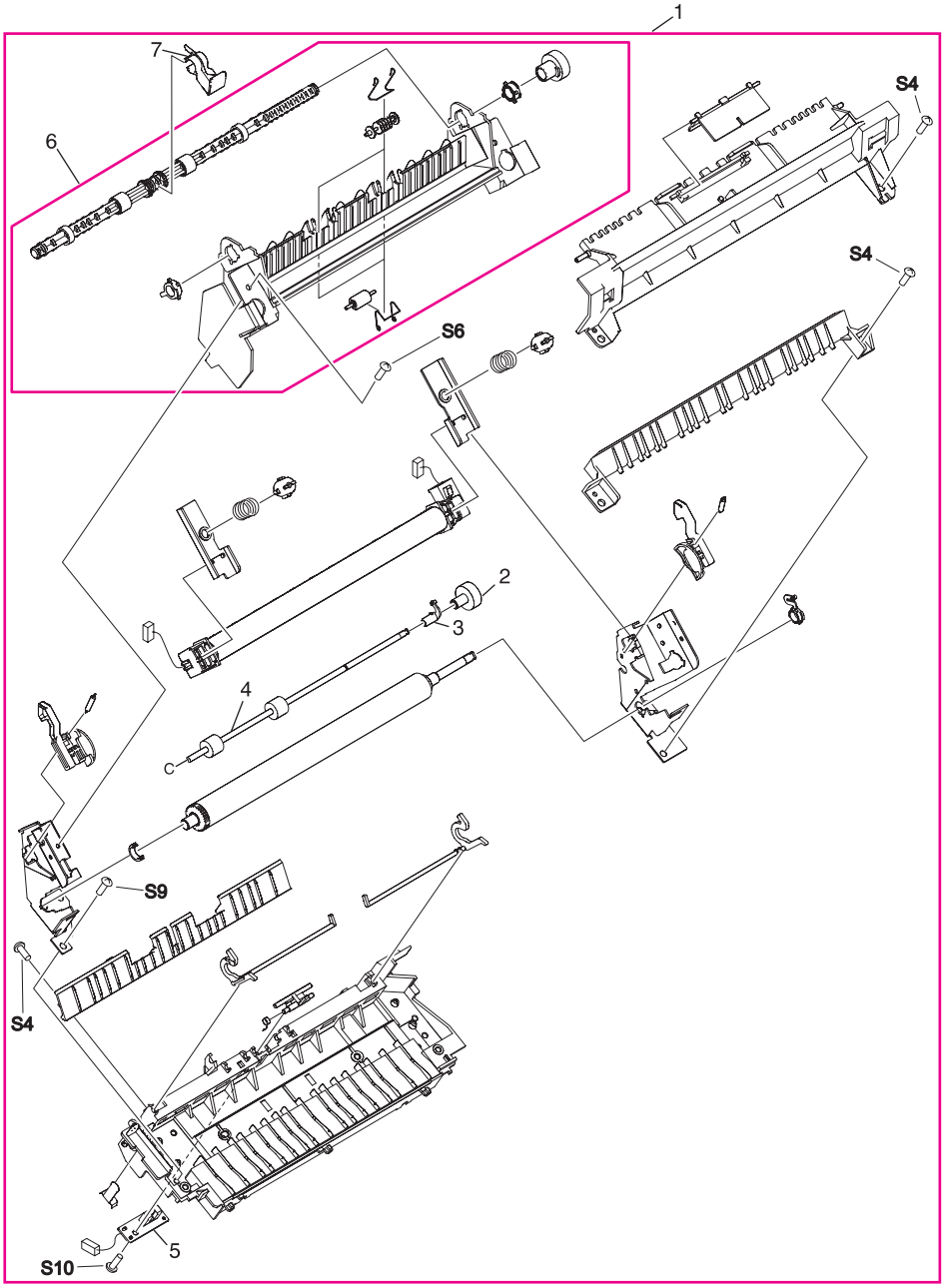


Figure 7-16. **Fuser assembly**

Table 7-23. Fuser assembly

Ref	Description	Part number	Qty
1	Fuser assembly, 110 V	RM1-0999-000CN	1
1	Fuser assembly, 220 V	RM1-1000-000CN	1
2	Gear, 17T	RA0-1089-000CN	1
3	Bushing	RA0-1104-000CN	1
4	Face-up roller	RF0-1003-000CN	1
5	Delivery sensor PCB assembly	RM1-0852-000CN	1
6	Face-down paper-delivery assembly	RM1-0556-000CN	1
7	Flapper, height	RC1-2393-000CN	1
S4	Screw, M4x14	XA9-1421-000CN	3
S6	Screw, TP, M3x8	XA9-1503-000CN	1
S9	Screw, tap, truss head, M4x10	RB9-0819-000CN	1
S10	Screw, tap, binding head, M3x8	RB9-0820-000CN	1

Alphabetical parts list

Table 7-24. Alphabetical parts list

Description	Part number	Table and page
110-volt replacement unit	Q2660-60055	Table 7-12 on page 261
220-volt replacement unit	Q2660-60065	Table 7-12 on page 261
ADF	C9143-60108	Table 7-9 on page 255
ADF document feed guide	C7309-40153	Table 7-10 on page 257
ADF glass	C7296-00014	Table 7-9 on page 255
ADF glass frame	C9124-40005	Table 7-9 on page 255
ADF input tray	C9143-60102	Table 7-9 on page 255
ADF input-tray flag	C7309-40013	Table 7-10 on page 257
ADF input-tray spring	C7309-80013	Table 7-10 on page 257
ADF pickup roller assembly	C7309-60049	Table 7-10 on page 257
ADF separation pad	C7309-60076	Table 7-10 on page 257
Arabic 3380 Bezel	Q2660-40019	Table 7-11 on page 259
Automatic document feeder (ADF)	C9143-60108	Table 7-8 on page 253
Back cover (includes straight-through output door)	RG0-1114-000CN	Table 7-12 on page 261
Bushing	RA0-1104-000CN	Table 7-23 on page 283
Cable modem FCC	C9126-60103	Table 7-16 on page 269
Cable, laser/scanner FFC	RK2-0185-000CN	Table 7-16 on page 269
Cable, laser/scanner motor	RM1-0832-000CN	Table 7-16 on page 269
Cartridge-guide holder (part of service-parts kit)	5851-1172	Table 7-18 on page 273
Cartridge-guide holder (part of service-parts kit)	5851-1172	Table 7-19 on page 275
Clamp, cable	WT2-5694-000CN	Table 7-18 on page 273

Table 7-24. Alphabetical parts list (continued)

Description	Part number	Table and page
Clamp, cable	WT2-5694-000CN	Table 7-19 on page 275
Clamp, cable	WT2-5694-000CN	Table 7-20 on page 277
Connecting link	RA0-1457-000CN	Table 7-17 on page 271
Control panel	Q2660-60101	Table 7-11 on page 259
Control panel (see table 7-11)		Table 7-8 on page 253
Control-panel cable	Q2660-60104	Table 7-11 on page 259
Control-panel chassis	C9124-40006	Table 7-11 on page 259
Cover, back assembly	RG0-1114-000CN	Table 7-13 on page 263
Cover, front	RA0-1450-020CN	Table 7-13 on page 263
Cover, left assembly	RG0-1113-000CN	Table 7-13 on page 263
Cover, left support	RA0-1444-000CN	Table 7-16 on page 269
Cover, right support	RA0-1452-000CN	Table 7-16 on page 269
Cover, right-side assembly	RG0-1116-000CN	Table 7-13 on page 263
Cover, top	RF0-1100-030CN	Table 7-13 on page 263
Czech 3380 Bezel	Q2660-40013	Table 7-11 on page 259
Danish 3380 Bezel	Q2660-40008	Table 7-11 on page 259
Delivery sensor PCB assembly	RM1-0852-000CN	Table 7-23 on page 283
Door, print-cartridge assembly	RG0-1115-040CN	Table 7-13 on page 263
Dutch 3380 Bezel	Q2660-40009	Table 7-11 on page 259
ECU (110-127 V)	RM1-0833-000CN	Table 7-16 on page 269
ECU (220-240 V)	RM1-0834-000CN	Table 7-16 on page 269

Table 7-24. Alphabetical parts list (continued)

Description	Part number	Table and page
Electrical components assembly (see table 7-20)		Table 7-15 on page 267
Engine controller case	RA0-1127-000CN	Table 7-20 on page 277
Engine controller PCB assembly, 110-127 V	RM1-0833-000CN	Table 7-20 on page 277
Engine controller PCB assembly, 220-240 V	RM1-0834-000CN	Table 7-20 on page 277
Engine deflector shield	Q2660-40002	Table 7-16 on page 269
English 3380 Bezel	Q2660-40003	Table 7-11 on page 259
Face-down paper-delivery assembly	RM1-0556-000CN	Table 7-23 on page 283
Face-up roller	RF0-1003-000CN	Table 7-23 on page 283
Fan assembly	RM1-0846-000CN	Table 7-17 on page 271
Feed-roller holder assembly	RM1-0839-000CN	Table 7-21 on page 279
Finnish 3380 Bezel	Q2660-40010	Table 7-11 on page 259
Flapper, height	RC1-2393-000CN	Table 7-23 on page 283
Foot, rubber	RA0-1412-000CN	Table 7-19 on page 275
Foot, rubber (paper pickup)	RA0-1003-000CN	Table 7-22 on page 281
Formatter, fax	Q2658-67901	Table 7-16 on page 269
French 3380 Bezel	Q2660-40004	Table 7-11 on page 259
Front cover	RA0-1450-020CN	Table 7-12 on page 261
Fuser assembly (110-127 V)	RM1-0999-000CN	Table 7-15 on page 267
Fuser assembly (220-240 V)	RM1-1000-000CN	Table 7-15 on page 267
Fuser assembly, 110 V	RM1-0999-000CN	Table 7-23 on page 283
Fuser assembly, 220 V	RM1-1000-000CN	Table 7-23 on page 283

Table 7-24. Alphabetical parts list (continued)

Description	Part number	Table and page
Fuser plate, left	RA0-1446-000CN	Table 7-17 on page 271
Fuser plate, right	RA0-1447-000CN	Table 7-17 on page 271
Fuser, 110 V	RM1-0999-000CN	Table 7-17 on page 271
Fuser, 220 V	RM1-1000-000CN	Table 7-17 on page 271
Gear kit	RY7-5081-000CN	Table 7-15 on page 267
Gear, 17T	RA0-1172-000CN	Table 7-18 on page 273
Gear, 17T	RA0-1089-000CN	Table 7-23 on page 283
Gear, 29T	RA0-1088-000CN	Table 7-17 on page 271
Gear, 69T	RA0-1176-000CN	Table 7-17 on page 271
German 3380 Bezel	Q2660-40005	Table 7-11 on page 259
German unpainted 3380 Bezel	Q2660-40028	Table 7-11 on page 259
Greek 3380 Bezel	Q2660-40020	Table 7-11 on page 259
Grounding plate	RA0-1072-000CN	Table 7-21 on page 279
Guide, front	RA0-1451-000CN	Table 7-17 on page 271
Guide, shutter	RC1-2195-000CN	Table 7-16 on page 269
Hebrew 3380 Bezel	Q2660-40021	Table 7-11 on page 259
HP jewel	7121-8043	Table 7-13 on page 263
Hungarian 3380 Bezel	Q2660-40014	Table 7-11 on page 259
Italian 3380 Bezel	Q2660-40006	Table 7-11 on page 259
Korean 3380 Bezel	Q2660-40022	Table 7-11 on page 259
Laser/scanner assembly	RM1-0524-030CN	Table 7-16 on page 269

Table 7-24. Alphabetical parts list (continued)

Description	Part number	Table and page
Left bottom frame support	RA0-1470-000CN	Table 7-12 on page 261
Left cartridge guide (part of service-parts kit)	5851-1172	Table 7-19 on page 275
Left height guide	RC1-2391-000CN	Table 7-13 on page 263
Left midpanel scanner cover	C9124-40002	Table 7-9 on page 255
Left plate assembly	RM1-0836-000CN	Table 7-16 on page 269
Left plate assembly	RM1-0836-000CN	Table 7-17 on page 271
Left plate assembly	RM1-0836-000CN	Table 7-19 on page 275
Left side cover	RG0-1113-000CN	Table 7-12 on page 261
LIU cover	C9126-40003	Table 7-16 on page 269
LIU groundstrap	C9126-00001	Table 7-16 on page 269
LIU, EMEA	C9138-60002	Table 7-16 on page 269
LIU, NA/WW	C9138-60001	Table 7-16 on page 269
Motor, stepping	RK2-0062-000CN	Table 7-18 on page 273
Norwegian 3380 Bezel	Q2660-40026	Table 7-11 on page 259
Paper lift-plate assembly	RM1-0840-000CN	Table 7-22 on page 281
Paper-pickup assembly	RM1-0838-000CN	Table 7-15 on page 267
Paper-pickup assembly	RM1-0838-000CN	Table 7-16 on page 269
Paper-pickup assembly (also includes all parts shown in the next figure)	RM1-0838-000CN	Table 7-21 on page 279
Paper-pickup assembly (also includes all parts shown in the previous figure)	RM1-0838-000CN	Table 7-22 on page 281
Paper-pickup cover assembly	RG0-1122-000CN	Table 7-14 on page 265
Paper-pickup-shaft assembly	RM1-0533-000CN	Table 7-21 on page 279

Table 7-24. Alphabetical parts list (continued)

Description	Part number	Table and page
Paper-pickup-tray assembly (see table 7-14)		Table 7-15 on page 267
Paper-sensor PCB assembly	RM1-0851-000CN	Table 7-21 on page 279
Paper-tray assembly (see table 7-14)		Table 7-12 on page 261
PCB spacer	RA0-1128-000CN	Table 7-20 on page 277
Pickup gear assembly	RM1-0551-000CN	Table 7-16 on page 269
Pickup roller	RL1-0303-000CN	Table 7-16 on page 269
Polish 3380 Bezel	Q2660-40015	Table 7-11 on page 259
Portuguese 3380 Bezel	Q2660-40011	Table 7-11 on page 259
Print-cartridge door	RG0-1115-040CN	Table 7-12 on page 261
Printer pickup-tray assembly	RG0-1121-000CN	Table 7-14 on page 265
RFI shield	Q2660-00002	Table 7-16 on page 269
RFI shield, ADF	C9124-00002	Table 7-9 on page 255
Right cartridge guide (part of service-parts kit)	5851-1172	Table 7-18 on page 273
Right height guide	RC1-2392-000CN	Table 7-13 on page 263
Right midpanel scanner cover	C9124-40003	Table 7-9 on page 255
Right plate assembly	RM1-0835-000CN	Table 7-16 on page 269
Right plate assembly	RM1-0835-000CN	Table 7-17 on page 271
Right plate assembly	RM1-0835-000CN	Table 7-18 on page 273
Right side cover	RG0-1116-000CN	Table 7-12 on page 261
Russian 3380 Bezel	Q2660-40016	Table 7-11 on page 259
Scanner assembly	Q2660-60115	Table 7-8 on page 253
Scanner assembly	Q2660-60106	Table 7-9 on page 255

Table 7-24. Alphabetical parts list (continued)

Description	Part number	Table and page
Scanner flat flexible cable (FFC) assembly (includes FCC C9124-60116 and shield)	Q2660-60103	Table 7-9 on page 255
Scanner PCA	Q2657-67901	Table 7-9 on page 255
Screw for scanner formatter	0515-4257	Table 7-9 on page 255
Screw, formatter	0515-2908	Table 7-16 on page 269
Screw, M4x14	XA9-1421-000CN	Table 7-21 on page 279
Screw, M4x14	XA9-1421-000CN	Table 7-22 on page 281
Screw, M4x14	XA9-1421-000CN	Table 7-23 on page 283
Screw, RS, M3x6	XA9-1495-000CN	Table 7-16 on page 269
Screw, RS, M3x6	XA9-1495-000CN	Table 7-17 on page 271
Screw, RS, M3x6	XA9-1495-000CN	Table 7-18 on page 273
Screw, RS, M3x6	XA9-1495-000CN	Table 7-19 on page 275
Screw, RS, M3x8	XA9-1504-000CN	Table 7-13 on page 263
Screw, RS, M3x8	XA9-1504-000CN	Table 7-16 on page 269
Screw, RS, M3x8	XA9-1504-000CN	Table 7-17 on page 271
Screw, RS, M3x8	XA9-1504-000CN	Table 7-18 on page 273
Screw, RS, M4x12	XA9-0722-000CN	Table 7-13 on page 263
Screw, tap, binding head M3x8	RB9-0820-000CN	Table 7-16 on page 269
Screw, tap, binding head, M3x8	RB9-0820-000CN	Table 7-21 on page 279
Screw, tap, binding head, M3x8	RB9-0820-000CN	Table 7-22 on page 281
Screw, tap, binding head, M3x8	RB9-0820-000CN	Table 7-23 on page 283
Screw, tap, truss head, M3x8	XB4-7300-809CN	Table 7-14 on page 265
Screw, tap, truss head, M4x10	RB9-0819-000CN	Table 7-13 on page 263

Table 7-24. Alphabetical parts list (continued)

Description	Part number	Table and page
Screw, tap, truss head, M4x10	RB9-0819-000CN	Table 7-17 on page 271
Screw, tap, truss head, M4x10	RB9-0819-000CN	Table 7-21 on page 279
Screw, tap, truss head, M4x10	RB9-0819-000CN	Table 7-22 on page 281
Screw, tap, truss head, M4x10	RB9-0819-000CN	Table 7-23 on page 283
Screw, TP, M3x6	XA9-1418-000CN	Table 7-22 on page 281
Screw, TP, M3x8	XA9-1503-000CN	Table 7-13 on page 263
Screw, TP, M3x8	XA9-1503-000CN	Table 7-16 on page 269
Screw, TP, M3x8	XA9-1503-000CN	Table 7-17 on page 271
Screw, TP, M3x8	XA9-1503-000CN	Table 7-18 on page 273
Screw, TP, M3x8	XA9-1503-000CN	Table 7-23 on page 283
Screw, with star washer, M3x6	XA9-0828-000CN	Table 7-20 on page 277
Screw, with washer, M3x6	RB9-0818-000CN	Table 7-17 on page 271
Screw, with washer, M3x6	RB9-0818-000CN	Table 7-18 on page 273
Screw, with washer, M3x8	XA9-1420-000CN	Table 7-20 on page 277
Screws for control-panel chassis	0515-4330	Table 7-11 on page 259
Screws for scanner side panels, scanner formatter, and ADF glass frame	0515-4330	Table 7-9 on page 255
Screws that secure scanner to printer	0515-4331	Table 7-9 on page 255
Separation pad	RF0-1014-020CN	Table 7-22 on page 281
Service parts kit	5851-1172	Table 7-15 on page 267
Shutter lever	RA0-1182-000CN	Table 7-16 on page 269
Simplified Chinese 3380 Bezel	Q2660-40023	Table 7-11 on page 259

Table 7-24. Alphabetical parts list (continued)

Description	Part number	Table and page
Slovak 3380 Bezel	Q2660-40017	Table 7-11 on page 259
Solenoid, 24 Vdc	RK2-0064-000CN	Table 7-17 on page 271
Spanish 3380 Bezel	Q2660-40007	Table 7-11 on page 259
Speaker	C9124-60113	Table 7-11 on page 259
Spring, compression	RA0-1169-000CN	Table 7-16 on page 269
Spring, tension	RA0-1212-000CN	Table 7-18 on page 273
Spring, torsion	RA0-1035-000CN	Table 7-21 on page 279
Spring, torsion	RA0-1200-000CN	Table 7-21 on page 279
Straight-through output door (includes back cover)	RG0-1114-000CN	Table 7-12 on page 261
Sub pad	RC1-1794-000CN	Table 7-22 on page 281
Support, left bottom frame	RA0-1470-000CN	Table 7-13 on page 263
Swedish 3380 Bezel	Q2660-40012	Table 7-11 on page 259
Thai 3380 Bezel	Q2660-40025	Table 7-11 on page 259
Top cover	RF0-1100-030CN	Table 7-12 on page 261
Torx screw	0624-1055	Table 7-10 on page 257
Traditional Chinese 3380 Bezel	Q2660-40024	Table 7-11 on page 259
Transfer roller	RM1-0550-000CN	Table 7-16 on page 269
Turkish 3380 Bezel	Q2660-40018	Table 7-11 on page 259
Vietnamese 3380 Bezel	Q2660-40029	Table 7-11 on page 259

Numerical parts list

Table 7-25. Numerical parts list

Part number	Description	Table and page
	Control panel (see table 7-11)	Table 7-8 on page 253
	Paper-tray assembly (see table 7-14)	Table 7-12 on page 261
	Electrical components assembly (see table 7-20)	Table 7-15 on page 267
	Paper-pickup-tray assembly (see table 7-14)	Table 7-15 on page 267
0515-2908	Screw, formatter	Table 7-16 on page 269
0515-4257	Screw for scanner formatter	Table 7-9 on page 255
0515-4330	Screws for scanner side panels, scanner formatter, and ADF glass frame	Table 7-9 on page 255
0515-4330	Screws for control-panel chassis	Table 7-11 on page 259
0515-4331	Screws that secure scanner to printer	Table 7-9 on page 255
0624-1055	Torx screw	Table 7-10 on page 257
5851-1172	Service parts kit	Table 7-15 on page 267
5851-1172	Right cartridge guide (part of service-parts kit)	Table 7-18 on page 273
5851-1172	Cartridge-guide holder (part of service-parts kit)	Table 7-18 on page 273
5851-1172	Left cartridge guide (part of service-parts kit)	Table 7-19 on page 275
5851-1172	Cartridge-guide holder (part of service-parts kit)	Table 7-19 on page 275
7121-8043	HP jewel	Table 7-13 on page 263
C7296-00014	ADF glass	Table 7-9 on page 255
C7309-40013	ADF input-tray flag	Table 7-10 on page 257
C7309-40153	ADF document feed guide	Table 7-10 on page 257
C7309-60049	ADF pickup roller assembly	Table 7-10 on page 257
C7309-60076	ADF separation pad	Table 7-10 on page 257
C7309-80013	ADF input-tray spring	Table 7-10 on page 257
C9124-00002	RFI shield, ADF	Table 7-9 on page 255
C9124-40002	Left midpanel scanner cover	Table 7-9 on page 255
C9124-40003	Right midpanel scanner cover	Table 7-9 on page 255
C9124-40005	ADF glass frame	Table 7-9 on page 255
C9124-40006	Control-panel chassis	Table 7-11 on page 259
C9124-60113	Speaker	Table 7-11 on page 259
C9126-00001	LIU groundstrap	Table 7-16 on page 269

Table 7-25. Numerical parts list (continued)

Part number	Description	Table and page
C9126-40003	LIU cover	Table 7-16 on page 269
C9126-60103	Cable modem FCC	Table 7-16 on page 269
C9138-60001	LIU, NA/WW	Table 7-16 on page 269
C9138-60002	LIU, EMEA	Table 7-16 on page 269
C9143-60102	ADF input tray	Table 7-9 on page 255
C9143-60108	Automatic document feeder (ADF)	Table 7-8 on page 253
C9143-60108	ADF	Table 7-9 on page 255
Q2657-67901	Scanner PCA	Table 7-9 on page 255
Q2658-67901	Formatter, fax	Table 7-16 on page 269
Q2660-00002	RFI shield	Table 7-16 on page 269
Q2660-40002	Engine deflector shield	Table 7-16 on page 269
Q2660-40003	English 3380 Bezel	Table 7-11 on page 259
Q2660-40004	French 3380 Bezel	Table 7-11 on page 259
Q2660-40005	German 3380 Bezel	Table 7-11 on page 259
Q2660-40006	Italian 3380 Bezel	Table 7-11 on page 259
Q2660-40007	Spanish 3380 Bezel	Table 7-11 on page 259
Q2660-40008	Danish 3380 Bezel	Table 7-11 on page 259
Q2660-40009	Dutch 3380 Bezel	Table 7-11 on page 259
Q2660-40010	Finnish 3380 Bezel	Table 7-11 on page 259
Q2660-40011	Portuguese 3380 Bezel	Table 7-11 on page 259
Q2660-40012	Swedish 3380 Bezel	Table 7-11 on page 259
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Q2660-40015	Polish 3380 Bezel	Table 7-11 on page 259
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Q2660-40017	Slovak 3380 Bezel	Table 7-11 on page 259
Q2660-40018	Turkish 3380 Bezel	Table 7-11 on page 259
Q2660-40019	Arabic 3380 Bezel	Table 7-11 on page 259
Q2660-40020	Greek 3380 Bezel	Table 7-11 on page 259
Q2660-40021	Hebrew 3380 Bezel	Table 7-11 on page 259
Q2660-40022	Korean 3380 Bezel	Table 7-11 on page 259
Q2660-40023	Simplified Chinese 3380 Bezel	Table 7-11 on page 259
Q2660-40024	Traditional Chinese 3380 Bezel	Table 7-11 on page 259

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Part number	Description	Table and page
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Q2660-40026	Norwegian 3380 Bezel	Table 7-11 on page 259
Q2660-40028	German unpainted 3380 Bezel	Table 7-11 on page 259
Q2660-40029	Vietnamese 3380 Bezel	Table 7-11 on page 259
Q2660-60055	110-volt replacement unit	Table 7-12 on page 261
Q2660-60065	220-volt replacement unit	Table 7-12 on page 261
Q2660-60101	Control panel	Table 7-11 on page 259
Q2660-60103	Scanner flat flexible cable (FFC) assembly (includes FCC C9124-60116 and shield)	Table 7-9 on page 255
Q2660-60104	Control-panel cable	Table 7-11 on page 259
Q2660-60106	Scanner assembly	Table 7-9 on page 255
Q2660-60115	Scanner assembly	Table 7-8 on page 253
RA0-1003-000CN	Foot, rubber (paper pickup)	Table 7-22 on page 281
RA0-1035-000CN	Spring, torsion	Table 7-21 on page 279
RA0-1072-000CN	Grounding plate	Table 7-21 on page 279
RA0-1088-000CN	Gear, 29T	Table 7-17 on page 271
RA0-1089-000CN	Gear, 17T	Table 7-23 on page 283
RA0-1104-000CN	Bushing	Table 7-23 on page 283
RA0-1127-000CN	Engine controller case	Table 7-20 on page 277
RA0-1128-000CN	PCB spacer	Table 7-20 on page 277
RA0-1169-000CN	Spring, compression	Table 7-16 on page 269
RA0-1172-000CN	Gear, 17T	Table 7-18 on page 273
RA0-1176-000CN	Gear, 69T	Table 7-17 on page 271
RA0-1182-000CN	Shutter lever	Table 7-16 on page 269
RA0-1200-000CN	Spring, torsion	Table 7-21 on page 279
RA0-1212-000CN	Spring, tension	Table 7-18 on page 273
RA0-1412-000CN	Foot, rubber	Table 7-19 on page 275
RA0-1444-000CN	Cover, left support	Table 7-16 on page 269
RA0-1446-000CN	Fuser plate, left	Table 7-17 on page 271
RA0-1447-000CN	Fuser plate, right	Table 7-17 on page 271
RA0-1450-020CN	Front cover	Table 7-12 on page 261
RA0-1450-020CN	Cover, front	Table 7-13 on page 263
RA0-1451-000CN	Guide, front	Table 7-17 on page 271

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Part number	Description	Table and page
RA0-1452-000CN	Cover, right support	Table 7-16 on page 269
RA0-1457-000CN	Connecting link	Table 7-17 on page 271
RA0-1470-000CN	Left bottom frame support	Table 7-12 on page 261
RA0-1470-000CN	Support, left bottom frame	Table 7-13 on page 263
RB9-0818-000CN	Screw, with washer, M3x6	Table 7-17 on page 271
RB9-0818-000CN	Screw, with washer, M3x6	Table 7-18 on page 273
RB9-0819-000CN	Screw, tap, truss head, M4x10	Table 7-13 on page 263
RB9-0819-000CN	Screw, tap, truss head, M4x10	Table 7-17 on page 271
RB9-0819-000CN	Screw, tap, truss head, M4x10	Table 7-21 on page 279
RB9-0819-000CN	Screw, tap, truss head, M4x10	Table 7-22 on page 281
RB9-0819-000CN	Screw, tap, truss head, M4x10	Table 7-23 on page 283
RB9-0820-000CN	Screw, tap, binding head M3x8	Table 7-16 on page 269
RB9-0820-000CN	Screw, tap, binding head, M3x8	Table 7-21 on page 279
RB9-0820-000CN	Screw, tap, binding head, M3x8	Table 7-22 on page 281
RB9-0820-000CN	Screw, tap, binding head, M3x8	Table 7-23 on page 283
RC1-1794-000CN	Sub pad	Table 7-22 on page 281
RC1-2195-000CN	Guide, shutter	Table 7-16 on page 269
RC1-2391-000CN	Left height guide	Table 7-13 on page 263
RC1-2392-000CN	Right height guide	Table 7-13 on page 263
RC1-2393-000CN	Flapper, height	Table 7-23 on page 283
RF0-1003-000CN	Face-up roller	Table 7-23 on page 283
RF0-1014-020CN	Separation pad	Table 7-22 on page 281
RF0-1100-030CN	Top cover	Table 7-12 on page 261
RF0-1100-030CN	Cover, top	Table 7-13 on page 263
RG0-1113-000CN	Left side cover	Table 7-12 on page 261
RG0-1113-000CN	Cover, left assembly	Table 7-13 on page 263
RG0-1114-000CN	Back cover (includes straight-through output door)	Table 7-12 on page 261
RG0-1114-000CN	Straight-through output door (includes back cover)	Table 7-12 on page 261
RG0-1114-000CN	Cover, back assembly	Table 7-13 on page 263
RG0-1115-040CN	Print-cartridge door	Table 7-12 on page 261
RG0-1115-040CN	Door, print-cartridge assembly	Table 7-13 on page 263
RG0-1116-000CN	Right side cover	Table 7-12 on page 261
RG0-1116-000CN	Cover, right-side assembly	Table 7-13 on page 263

Table 7-25. Numerical parts list (continued)

Part number	Description	Table and page
RG0-1121-000CN	Printer pickup-tray assembly	Table 7-14 on page 265
RG0-1122-000CN	Paper-pickup cover assembly	Table 7-14 on page 265
RK2-0062-000CN	Motor, stepping	Table 7-18 on page 273
RK2-0064-000CN	Solenoid, 24 Vdc	Table 7-17 on page 271
RK2-0185-000CN	Cable, laser/scanner FFC	Table 7-16 on page 269
RL1-0303-000CN	Pickup roller	Table 7-16 on page 269
RM1-0524-030CN	Laser/scanner assembly	Table 7-16 on page 269
RM1-0533-000CN	Paper-pickup-shaft assembly	Table 7-21 on page 279
RM1-0550-000CN	Transfer roller	Table 7-16 on page 269
RM1-0551-000CN	Pickup gear assembly	Table 7-16 on page 269
RM1-0556-000CN	Face-down paper-delivery assembly	Table 7-23 on page 283
RM1-0832-000CN	Cable, laser/scanner motor	Table 7-16 on page 269
RM1-0833-000CN	ECU (110-127 V)	Table 7-16 on page 269
RM1-0833-000CN	Engine controller PCB assembly, 110-127 V	Table 7-20 on page 277
RM1-0834-000CN	ECU (220-240 V)	Table 7-16 on page 269
RM1-0834-000CN	Engine controller PCB assembly, 220-240 V	Table 7-20 on page 277
RM1-0835-000CN	Right plate assembly	Table 7-16 on page 269
RM1-0835-000CN	Right plate assembly	Table 7-17 on page 271
RM1-0835-000CN	Right plate assembly	Table 7-18 on page 273
RM1-0836-000CN	Left plate assembly	Table 7-16 on page 269
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RM1-0838-000CN	Paper-pickup assembly	Table 7-15 on page 267
RM1-0838-000CN	Paper-pickup assembly	Table 7-16 on page 269
RM1-0838-000CN	Paper-pickup assembly (also includes all parts shown in the next figure)	Table 7-21 on page 279
RM1-0838-000CN	Paper-pickup assembly (also includes all parts shown in the previous figure)	Table 7-22 on page 281
RM1-0839-000CN	Feed-roller holder assembly	Table 7-21 on page 279
RM1-0840-000CN	Paper lift-plate assembly	Table 7-22 on page 281
RM1-0846-000CN	Fan assembly	Table 7-17 on page 271
RM1-0851-000CN	Paper-sensor PCB assembly	Table 7-21 on page 279
RM1-0852-000CN	Delivery sensor PCB assembly	Table 7-23 on page 283
RM1-0999-000CN	Fuser assembly (110-127 V)	Table 7-15 on page 267

Table 7-25. Numerical parts list (continued)

Part number	Description	Table and page
RM1-0999-000CN	Fuser, 110 V	Table 7-17 on page 271
RM1-0999-000CN	Fuser assembly, 110 V	Table 7-23 on page 283
RM1-1000-000CN	Fuser assembly (220-240 V)	Table 7-15 on page 267
RM1-1000-000CN	Fuser, 220 V	Table 7-17 on page 271
RM1-1000-000CN	Fuser assembly, 220 V	Table 7-23 on page 283
RY7-5081-000CN	Gear kit	Table 7-15 on page 267
WT2-5694-000CN	Clamp, cable	Table 7-18 on page 273
WT2-5694-000CN	Clamp, cable	Table 7-19 on page 275
WT2-5694-000CN	Clamp, cable	Table 7-20 on page 277
XA9-0722-000CN	Screw, RS, M4x12	Table 7-13 on page 263
XA9-0828-000CN	Screw, with star washer, M3x6	Table 7-20 on page 277
XA9-1418-000CN	Screw, TP, M3x6	Table 7-22 on page 281
XA9-1420-000CN	Screw, with washer, M3x8	Table 7-20 on page 277
XA9-1421-000CN	Screw, M4x14	Table 7-21 on page 279
XA9-1421-000CN	Screw, M4x14	Table 7-22 on page 281
XA9-1421-000CN	Screw, M4x14	Table 7-23 on page 283
XA9-1495-000CN	Screw, RS, M3x6	Table 7-16 on page 269
XA9-1495-000CN	Screw, RS, M3x6	Table 7-17 on page 271
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XA9-1495-000CN	Screw, RS, M3x6	Table 7-19 on page 275
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XA9-1503-000CN	Screw, TP, M3x8	Table 7-16 on page 269
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